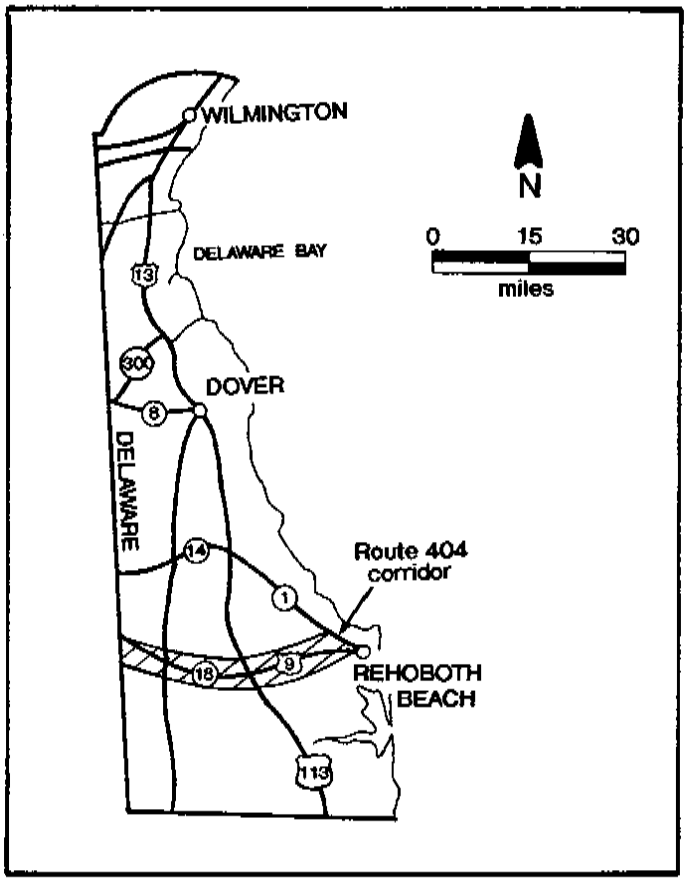
Cultural Resources of the Proposed Sussex East-West Corridor Delaware Routes 404/18 and 9: An Overview Prepared for the Draft Environmental Impact Statement Sussex and Kent Counties, Delaware



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Delaware Department of Transportation Archaeology Series No. 92

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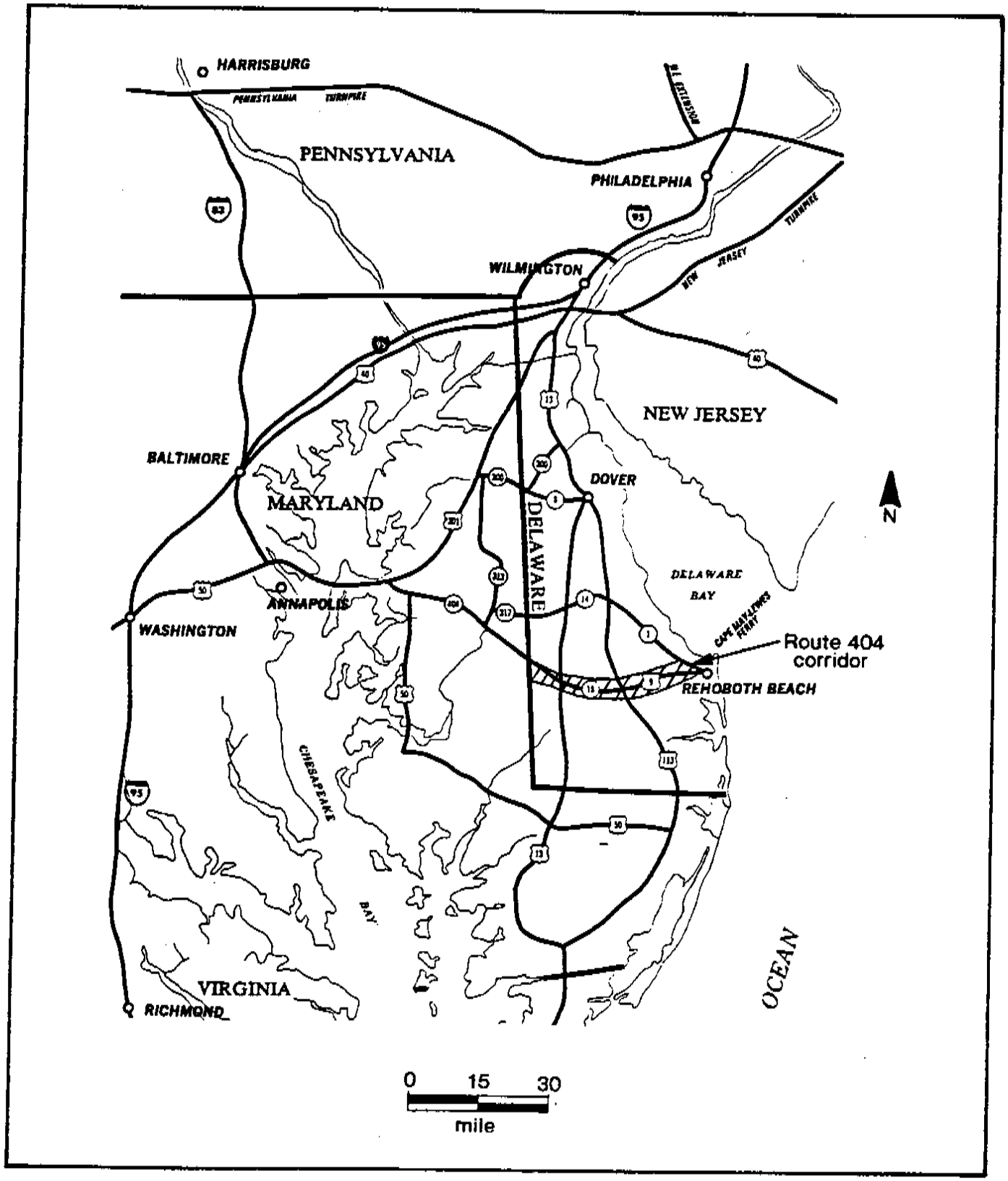
INTRODUCTION

The Sussex East-West Corridor project is a study of the alternatives to relieve the present and projected traffic conditions along Delaware Routes 404, 18, and 9 in northern Sussex County. Year-round traffic conditions were not the primary focus of the project; rather the project was concerned with the increasing traffic demand associated with summer beach traffic moving to Delaware and Maryland beach resorts. The proposed alternatives are for a 30-mile four lane controlled access highway extending from the Delaware-Maryland line west of Bridgeville to State Route 1 outside of Lewes. The regional context of the proposed project area is shown in the Project Location Map (Figure 1). The area is characterized by farmland, wetlands and forest, with concentrations of residential, commercial, light industrial, and public services in and around Bridgeville, Georgetown, and Lewes.

In the last 15 years the population growth of this portion of Sussex County, particularly during the summer months, has been phenomenal. Since 1972 over 2,000 dwelling units per year have been added to the housing stock of the county, and the summer-time population is presently about 200,000 (double the year-round residential population). A special study was prepared by DelDOT in 1987 detailing the present and projected traffic conditions in several areas in the county, and it was determined that all of the major east-west roads within the county were at or near summer capacity and that the summertime population by the year 2005 would increase by 58%, to over 321,000 people. "During the warm months, most of the principal arteries operate at capacity

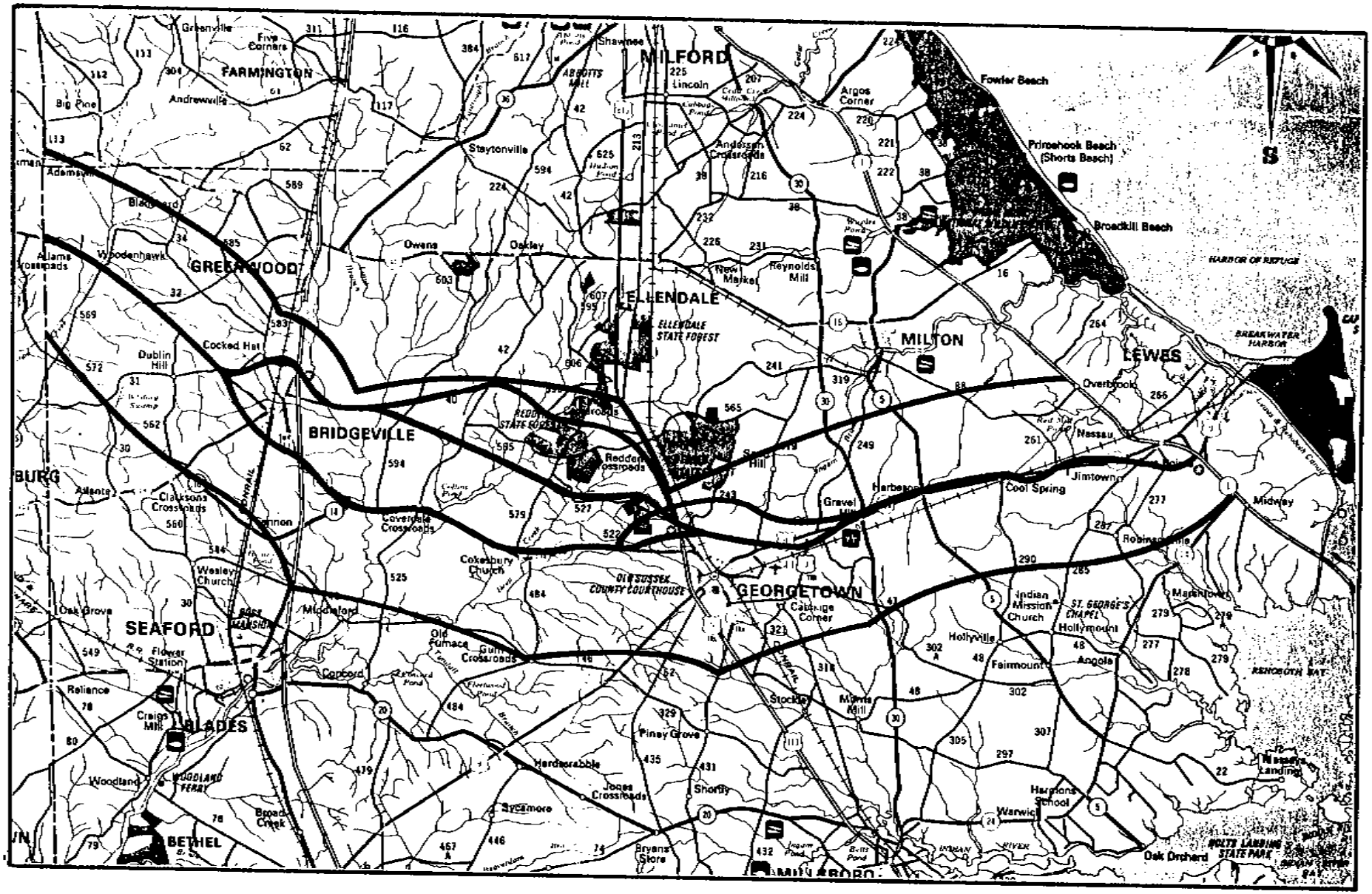
FIGURE 1
Project Location Map



or jammed conditions for many hours per week. These conditions already hinder local circulation, and in cases where key beach area travel routes pass through Sussex towns such as Bridgeville and Georgetown, the streets are choked and local access becomes difficult" (Orth, Rodgers, Thompson, and Associates 1987:6). Accordingly, DelDOT proposed several alternative alignments for an East-West Corridor, and assessments of the cultural resources conducted.

The project study area originally investigated the areas 2 to 3 miles on either side of Delaware 404 from the state line to State Route 1. As part of a preliminary assessment of the cultural resources located within the proposed project corridor, DelDOT's consultants reported the presence of at least 84 known prehistoric sites, 711 historic standing structures, and 434 potential historical archaeological sites (Catts, Custer and Hoseth 1991:59-69). Following the publication of the cultural resources reconnaissance, DelDOT determined on four potential 1000' wide project corridors located within the original 30-mile by 5-mile study area. These four corridors were labeled the "404 Alignment", the "Route 40 Alignment", the "Wishbone Alignment", and the "Route 527 Alignment" (Figure 2). A preliminary archaeological survey of selected portions of these alignments was carried out by the University of Delaware Center for Archaeological Research (UDCAR) during the winter of 1990-91, while an architectural reconnaissance of the potential corridors was conducted by Cultural Heritage Research Services, Inc. (CHRS) (Watson, Catts et al. n.d.; Tabachnick and Keller 1991). Presently, DelDOT has narrowed the potential project corridors to

FIGURE 2
Original East-West Corridor with Alignments



two, 300' wide alignments: the "Route 404 Alignment" and the "Route 527 Alignment". These will henceforth be referred to as the Southern Alignment and the Northern Alignment alternatives, respectively. The cultural resources located within these two potential project alignments will be discussed in this report, and the other two potential corridors (Route 40 and the Wishbone alignments) will not be considered.

This volume presents an overview of three main classes of cultural resources encountered in the two proposed alignments within the East-West Corridor: prehistoric archaeological sites, historical archaeological sites, and historical standing structures. The essays that follow are summarizations of information gathered in more intensive studies of the Corridor's cultural resources (Catts, Custer and Hoseth 1991; Tabachnick and Keller 1991; Watson, Catts, et al. n.d.). For the purposes of project planning, all site data were organized into three alignment alternatives; the Northern Alignment, generally following the route of state road 527; the Southern Alignment, following existing State Road 404, and the areas of overlap utilized by both proposed alignments, located in the eastern and western portions of the project area (Figures 3 and 4). The archaeological data were gathered and analyzed by staff of the University of Delaware Center for Archaeological Research. The inventories of standing structures were compiled from the existing inventories maintained by the Delaware Bureau of Archaeology and Historic Preservation (BAHP). Analysis and assessment of the standing structures were undertaken by Cultural Heritage Research Services, Inc., of North Wales, Pennsylvania.

FIGURE 3

Northern Alignment Alternative

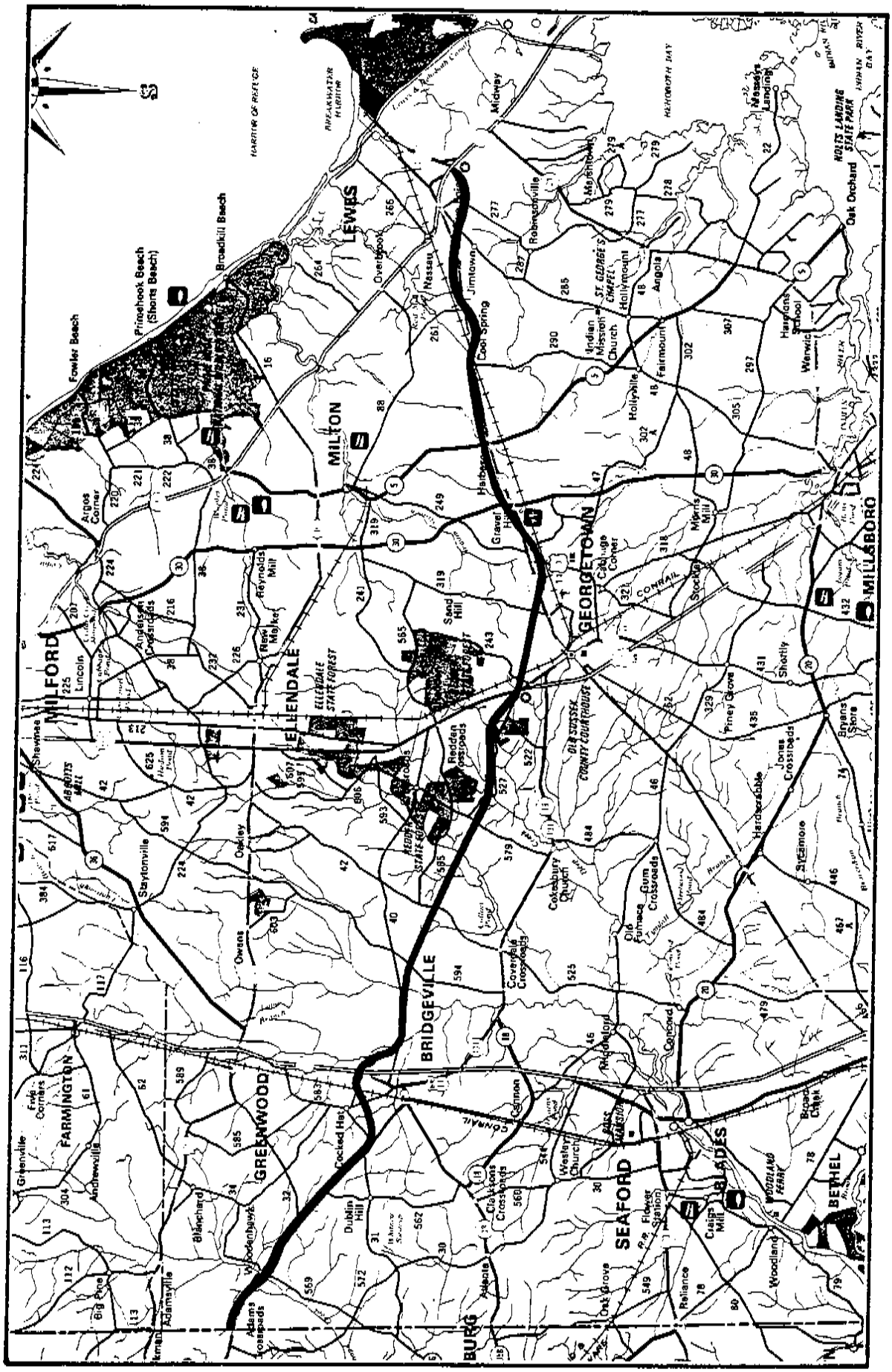
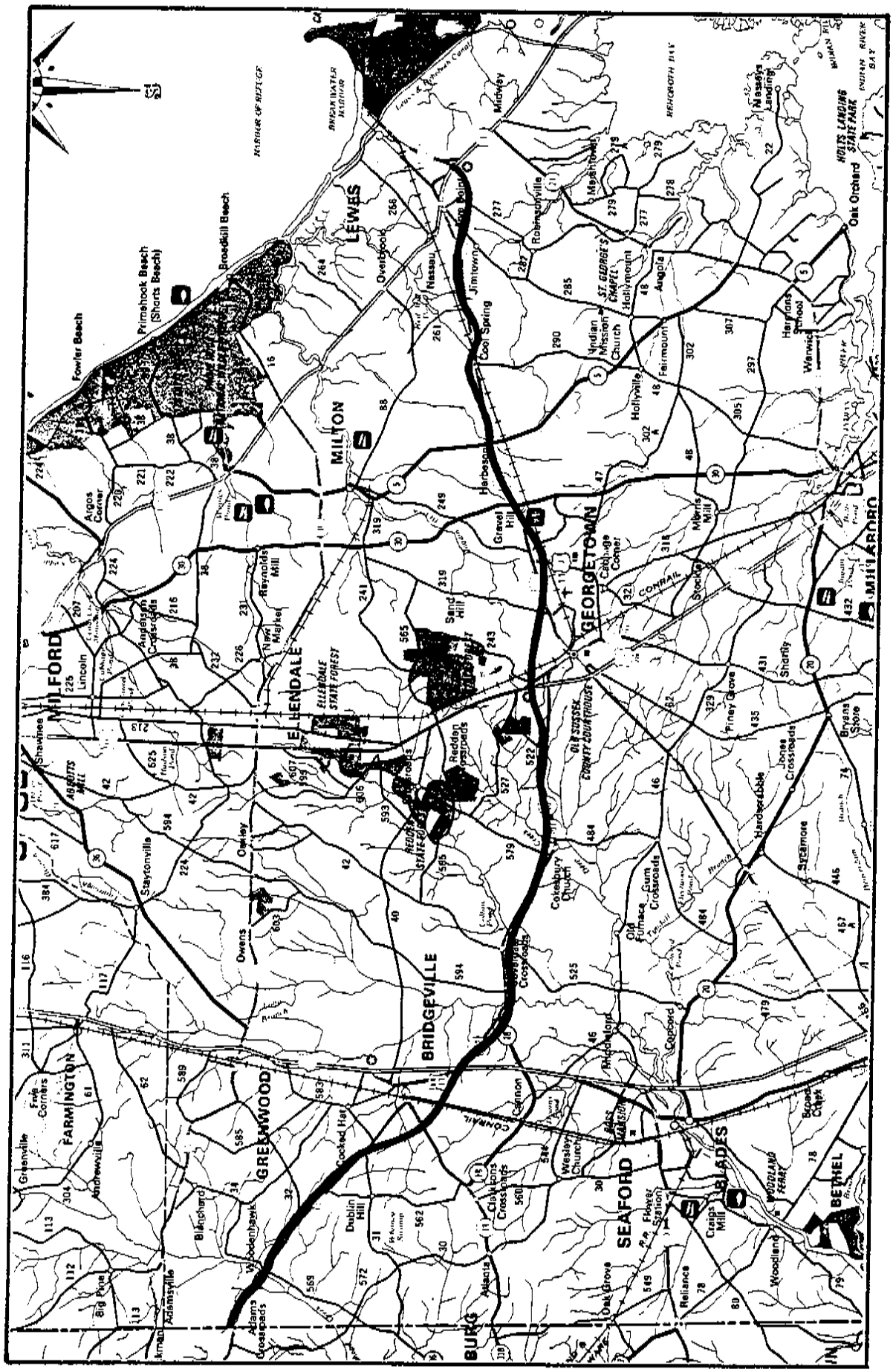


FIGURE 4

Southern Alignment Alternative



A summary of the cultural resources management considerations is also provided.

AN OVERVIEW OF PREHISTORIC ARCHAEOLOGICAL RESOURCES OF THE PROPOSED EAST-WEST CORRIDOR

The purpose of this overview is to provide a brief description of the types of prehistoric archaeological resources that have been identified within, or are expected to be located within, the two proposed East-West Corridor alignments alternatives. Expected prehistoric site locations are based on probability distributions that were developed during the initial planning study of the East-West Corridor (Catts, Custer and Hoseth 1991). These models were originally utilized in the planning of the State Route 1 Corridor (Custer, Jehle, Klatka, and Eveleigh 1984) and were subsequently tested and refined in later studies (Custer and Bachman 1985; Custer, Bachman, and Grettler 1986). All known sites and projected probability zones are noted in Attachment I and listed in Appendix I to this report.

In general, this overview will first describe the environmental setting of the study area as it relates to the regional prehistoric archaeology. Then each of the major archaeological periods will be reviewed and relevant sites within the proposed alignment alternatives will be discussed. Finally, potentially significant sites, and classes of sites, that are likely to be eligible for listing on the National Register of Historic Places will be noted.

ENVIRONMENTAL SETTING

All of proposed alignment alternatives of the study area fall within the Low Coastal Plain physiographic zone that

includes most of Kent and Sussex Counties. The Low Coastal Plain is underlain by the sands of the Columbia Formation (Jordan 1964; Delaware Geological Survey 1976) and these sands have been extensively reworked by various geological processes. The result is a very flat and relatively featureless landscape with elevation differences that range up to 10 meters (30 feet). These small differences in elevation are further moderated by long and gradual slopes. Surface water settings have been severely affected by rising sea level and most river systems, including much of the Nanticoke, Marshyhope, Broadkill, their tributaries and lower order tributaries of Indian River and Rehoboth Bay in the study area, are tidal in their middle and lower reaches. In general, the watercourses of the study area, particularly the main course of the Nanticoke River, some of its larger tributaries, such as Deep Creek, Broad Creek, and Clear Brook, and the Marshyhope provide a richer range of resources than the less well watered interior. Therefore, for the purposes of this report two basic environmental zones, the riverine settings and the interior, will be delimited for the survey area.

Most of the riverine areas of the proposed Sussex East-West Corridor have an associated fringing tidal marsh characterized as the Arrow-Arum - Pickerel Weed Marsh Type (Zone VI - Daiber et al. 1976:86-87, Figure 25). These marshes occur within tidal mud flats where the water salinity ranges between fresh and slightly brackish. The prominent plants are Arrow-arum and pickerel weed; and reed grass, marsh mallow, and wild rice are also common. Many species of duck and muskrat are found in the area and various species of fish, including anadramous species, use these

marshes as spawning areas. In general, these marshes provide a plethora of faunal and floral food sources not seen in other parts of the study area. Adjacent to the fringing marsh there is usually a steep bluff which is undergoing continual erosion. Cultivation often extends right up to the bluff, but in some cases a fringing woodland of hydrophytic species such as loblolly pine, sweet gum, mixed oaks, and Virginia pine (Ireland and Matthews 1974), is present. In a few places along the Nanticoke there are some developed floodplain settings, but these geomorphological settings are rare. For the most part, movement of the main channel of the major drainages has been constrained between the present river-edge bluffs over the course of the last 10,000 years.

Cypress swamps along some of the higher order tributaries of the Nanticoke, such as in the vicinity of James Branch, Hitch Pond, and Trussum Pond provide a unique environmental setting within the riverine area. In the study area, as is the case throughout the Delmarva Peninsula, cypress swamps are located just upstream of the tidal marshes. Bald cypress, swamp black gum, and red maple are the dominant tree species (Braun 1967:93; Brush et al. 1980:83) and there are many associated edible aquatic plants. Deer, and many other game animals frequent these swamps and they are highly productive environmental settings for hunters and gatherers. Unfortunately, the antiquity of these swamps and their vegetation history is not well known.

In contrast to the well watered and environmentally diverse riverine areas of southwestern Delaware, the interior is not as

well watered. Certainly, the diversity of the tidal wetlands is not found in the interior. However, studies of environmental diversity in the Middle Atlantic Coastal Plain (Brush, Lenk, and Smith 1980; Braun 1967) note the importance of soil drainage in determining environmental composition and there are many large patches of poorly drained soil settings in the interior (Ireland and Matthews 1974). These poorly drained areas are now characterized by woodlands of either deciduous or coniferous species, with the later developmentally older. Common species include willow oak, white oak, sweet gum, red maple, water oak, cow oak, black gum, sweet oak, holly, and dogwood (Braun 1967:268). Thus, the interior, prior to the artificial draining of agricultural fields, was probably at one time a rich mosaic of poorly drained, fresh water swamps and bogs, and well drained sand ridges. The poorly drained woodlands would have been productive settings for hunters and gatherers and would have been attractive settlement locations even though they were not as productive as the riverine areas. In sum, the area that the proposed East-West Corridor Alignment alternatives pass through can be generally characterized as a contrast between the very rich and productive riverine settings which included the oligohaline ecotone and a less rich, but still very productive, interior zone.

Numerous sources of data indicate that there were marked climatic and environmental changes over the past 12,000 years in both riverine and interior areas. Detailed discussions have been presented elsewhere (Custer 1983a:17-24; 1984a:30-37, 44-48, 62-64, 89-93, 154) and only a summary will be presented here. It

TABLE 1

PALEOENVIRONMENTS IN THE STUDY AREA

Episode	Interior Well-Drained	Poorly Drained	Riverine
Late Glacial (12,000 BC - 6500 BC)	Boreal forest, limited grasslands	Bogs and swamps with deciduous gallery forest	Deciduous gallery forest with some floodplain grasslands
Pre-Boreal/ Boreal (8000 BC - 6500 BC)	Boreal forest	Bogs and swamps with deciduous gallery forest	Deciduous gallery forest and boreal forest
Atlantic (6500 BC - 3000 BC)	Oak-hemlock mesic deciduous forest	Extensive bogs and swamps with deciduous gallery forest	Mesic deciduous forests
Sub-Boreal (3000 BC - 800 BC)	Oak-hickory-pine xeric forests and grasslands	Few bogs and swamps	Deciduous gallery forests with fringing wetlands
Sub-Atlantic /Recent (800 BC - recent)	Oak-pine forest with mixed mesophytic communities	Bogs and swamps with deciduous gallery forests	Deciduous gallery forests with fringing wetlands

should be noted that there are numerous relevant sources of paleoenvironmental data for Delaware's Low Coastal Plain including the Dill Farm Site (Custer and Griffith 1984), a series of cores from the Nanticoke drainage (Brush 1986), cores from a bay/basin feature near 7NC-H-20 (Custer and Bachman 1986b) and other bay/basin sites (Webb, Newby, and Webb 1988), and a series of cores from the mouth of the Chesapeake Bay (Harrison et al. 1965). Table 1 summarizes the changing environments through time and notes their distributions in the riverine and interior portions of the study area. It should also be noted that the

productivity of the riverine zone has changed through time as post-Pleistocene sea level rise (Belknap and Kraft 1977) inundated the drainage and pushed tidal and brackish water settings further into the interior along the major drainages. The basic dichotomy between the riverine and interior areas probably was present for much of the Holocene and was an important factor in historic and prehistoric settlement decisions.

REGIONAL PREHISTORY AND ARCHAEOLOGICAL SITES

The prehistoric archaeological record of the proposed alignments within the East-West Corridor, and of the Delmarva Peninsula in general, can be divided into four major periods: the Paleo-Indian Period (ca. 12,000 B.C. - 6500 B.C.), the Archaic Period (6500 B.C. - 3000 B.C.), the Woodland I Period (3000 B.C. - A.D. 1000), and the Woodland II Period (A.D. 1000 - A.D. 1650). A fifth period, the Contact Period, may also be considered and includes the period from A.D. 1650 to A.D. 1750, the approximate date of the final Native American habitation of southern Delaware in anything resembling their pre-European Contact form. The following descriptions of these periods are derived from Custer (1983a; 1983b; 1984a; 1988).

Presently there are a total of fifteen separate prehistoric archaeological sites in the two alignment alternatives; five of these are unknown as to their temporal associations (Table 2). Several of the sites are multi-component sites (ie., having more than one period of occupation); consequently there are twenty components represented among the fifteen sites.

TABLE 2

SUMMAR OF PREHISTORIC SITES
LOCATED WITHIN THE LIMITS OF THE PROPOSED EAST-WEST CORRIDOR ALIGNMENTS

DelDOT Design Map #	Both						Northern						Southern					
	P	A	WI	W2	U	TOT	P	A	WI	W2	U	TOT	P	A	WI	W2	U	TOT
1			2		2	4												
2			2			2												
3																		
4																		
5															[1]			1
6																		
7																		
8																		
9									[1]			1						
10																		
11																		
12															[1]			1
14								[1]				1			1			1
15											1	1						
17																		
19											2	2						
20		[1]				1												
24																		
26																		
29																		
30																		
31																		

KEY: P = Paleo-indian
A = Archaic
WI = Woodland I
W2 = Woodland II
U = Unknown
[ ] = Multicomponent

Paleo-Indian Period (12,000 B.C. - 6500 B.C.). The Paleo-Indian Period encompasses the time of the final disappearance of Pleistocene glacial conditions from Eastern North America and the establishment of more modern Holocene environments. The distinctive feature of the Paleo-Indian Period is an adaptation to the cold, and alternately wet and dry, conditions at the end of the Pleistocene and the beginning of the Holocene. This adaptation was primarily based on hunting and gathering, with hunting providing a large portion of the diet. Hunted animals may have included now extinct megafauna and moose. A mosaic of deciduous, boreal, and grassland environments would have provided a large number of productive habitats for these game animals throughout southern Delaware, and watering areas would have been particularly good hunting settings.

Tool kits of the people who lived at this time are oriented toward the procurement and processing of hunted animal resources. A preference for high quality lithic materials has been noted in the stone tool kits and careful resharpening and maintenance of tools was common. A recent analysis of fluted points from the Delmarva Peninsula, including some from the study area, shows this preference (Custer 1984b). A lifestyle of movement among the game-attractive environments has been hypothesized with the social organizations being based upon single and multiple family bands. Throughout the 5500 year time span of the period, the basic settlement structure remained relatively constant with some modifications being seen as Holocene environments appeared at the end of the Paleo-Indian Period.

There are at present no known Paleo-Indian sites located within the limits of the proposed alignment alternatives. Any Paleo-Indian sites that might be discovered would be eligible for listing on the National Register of Historic Places. The reconnaissance level survey of the East-West Corridor (Catts, Custer and Hoseth 1991) indicates that in the region the main types of Paleo-Indian sites known are base camps, base camp maintenance stations, and hunting sites. The riverine settings of the Nanticoke and its major tributaries would be the expected locations for base camps while poorly drained interior swamps and bogs would be the foci of maintenance and hunting sites. According to Catts, Custer and Hoseth (1991:73) the entire project area falls within a region with low data quality and a low probability for all types of Paleo-Indian sites.

Archaic Period (6500 B.C. - 3000 B.C.). The Archaic Period is characterized by a series of adaptations to the newly emerged full Holocene environments. These environments differed from earlier ones and were dominated by mesic forests of hemlock and oak. A reduction in open grasslands in the face of warm and wet conditions caused the extinction of many of the grazing animals hunted during Paleo-Indian times; however, browsing species such as deer flourished. Adaptations changed from the hunting focus of the Paleo-Indians to a more generalized foraging pattern in which plant food resources would have played a more important role.

Tool kits were more generalized than earlier Paleo-Indian tool kits and showed a wider array of plant processing tools such as grinding stones, mortars, and pestles. A mobile lifestyle was

probably common with a wide range of resources and settings utilized on a seasonal basis. A shifting band-level organization which saw the seasonal waxing and waning of group size in relation to resource availability is evident. A recent study of Archaic site distributions on the Delmarva Peninsula (Custer 1986a) indicates that although there were changes in adaptations between the Paleo-Indian and Archaic periods, the basic site location patterns remained the same. As with the Paleo-Indian period, site types would include base camps (habitation sites) and hunting and maintenance sites where various natural resources were procured. Generally, Archaic sites should occur in the drainage divide area of the proposed alignment alternatives, and to a lesser frequency throughout the rest of the alignments.

Two sites containing Archaic components or occupations are presently known to exist within the proposed alignment alternatives. One is potentially a base camp or maintenance station located within the Northern Alignment along the western edge of a tributary to Gravelly Branch, and the other is possibly a base camp or hunting site located in the drainage divide, in the area used by both alignments, north of Georgetown and immediately to the east of State Road 243. Though both sites have been field-checked, their National Register eligibility at present is not known. There are generally so few Archaic sites reported for the state of Delaware that any sites from this Period that would be discovered in the alignments would be eligible for listing on the National Register of Historic Places, as long as they had contextual integrity.

Woodland I Period (3000 B.C. - A.D. 1000). The Woodland I Period can be correlated with a dramatic change in local climates and environments that seems to have been a part of events occurring throughout the Middle Atlantic region. A pronounced warm and dry period set in and lasted from ca. 3000 B.C. to 1000 B.C. Mesic hemlock-oak forests were replaced by xeric forests of oak and hickory, and grasslands again became common. Some interior streams dried up, but the overall effect of the environmental changes was an alteration of the environment, not a degradation. Continued sea level rise created extensive brackish water marshes which were especially high in productivity throughout much of southern Delaware.

The major changes in environment and resource distributions caused a radical shift in adaptations for prehistoric groups. Important areas for settlements included the major river floodplains and estuarine areas. Many large base camps with fairly large numbers of people are evident in many parts of the Delmarva Peninsula. These sites supported many more people than earlier base camp sites and may have been occupied nearly throughout the year. The overall tendency was toward a more sedentary lifestyle with increases in local population densities.

Woodland I tool kits show some minor variations as well as some major additions from previous Archaic tool kits. Plant processing tools became increasingly common as would be expected in the face of an intensive harvesting of wild plant foods that may have approached the efficiency of horticulture by the end of the Woodland I Period. Chipped stone tools changed little from the preceding Archaic Period; however, more broad-bladed knife-

like processing tools became prevalent. Also, the presence of a number of non-local lithic raw materials indicates that trade and exchange systems with other groups were beginning to develop (Custer 1984c). The addition of stone, and then ceramic, containers is also seen. These items allowed more efficient cooking of certain types of food and may also have functioned as storage containers for surplus food resources.

Social organizations also seem to have undergone radical changes during this period. With the onset of relatively sedentary lifestyles and intensified food production, which might have produced occasional surpluses, incipient ranked societies began to develop (Custer 1982). One indication of these early ranked societies is the presence of extensive trade and exchange and some caching of special artifact forms.

Woodland I settlement in the East-West Corridor, especially along the Nanticoke drainage, is significantly more intensive than that of earlier time periods. The presence of ceramics also allows the identification of individual cultural complexes at sites.

There are numerous Clyde Farm Complex sites (3000 B.C. - 500 B.C.) in the study area. The base camp distribution is the same as that of the general Woodland I time period. It may be that Clyde Farm settlement systems in this area involved a seasonal shift between base camps in riverine and drainage divide areas. However, this hypothesis needs to be tested with future fieldwork. Some non-local lithic materials, including argillite, rhyolite, and steatite are present at these sites (Custer 1984c) indicating the existence of trade and exchange networks.

However, the extent of non-local materials is not as great as that seen for Barker's Landing Complex sites further to the north in Kent County.

Between 500 B.C. and 0 A.D., two roughly contemporaneous culture complexes, Wolfe Neck and Delmarva Adena are recognized for southern Delaware. The two complexes are generally thought to be mutually exclusive with Delmarva Adena Complex groups differentiated from Wolfe Neck groups by the presence of mortuary ceremonialism, non-local artifacts from Ohio, and more complex social systems (Custer 1984a:113). It is also known that the Wolfe Neck complex slightly predates the Delmarva Adena complex (Custer 1984a:87; Griffith 1982). Whatever the relationship between the complexes, sites with occupations of both complexes are present to the east of the project area in the Atlantic Coast region (Custer 1987) where several individual sites have occupations by both complexes.

Moving from Clyde Farm to Wolfe Neck Complex times (ca. 500 B.C. - A.D. 0), the number of base camps increased dramatically in the riverine area. There is a definite shift from the use of lower Broad Creek as a procurement site area to a base camp area. This kind of shift and the dramatic increase in the number of base camp sites indicates increasing population densities in the riverine area. Similar settlement pattern trends are seen throughout the Delmarva Peninsula during Clyde Farm and Wolfe Neck times (Custer 1984a:94-130, 1988) and are thought to be related to environmental changes that occurred at this time (Custer 1984a:89-91). In general, these environmental changes exacerbated the well-watered/poorly-watered dichotomy of the

environment and made riverine settings even more attractive than they were during earlier time periods.

With the onset of the Carey Complex (ca. A.D. 0 - 500), the basic settlement pattern of the Wolfe Neck Complex remained with little or no change in intensity. Presumably, population densities did not increase at this time. However, Carey Complex base camps tended to be located even further up the drainage than Wolfe Neck Complex base camps. Similar settlement shifts are noted for other Coastal Plain drainages (Custer 1984a:144) and are thought to be related to the upstream movement of the brackish/freshwater transition zone due to sea level rise.

By Late Carey Complex times (ca. A.D. 500 - 1000), there is a pronounced decrease in the number of sites in the Nanticoke drainage. It is possible that some of this decrease in settlement intensity is due to problems with identifying some ceramics from this time period. For example, the shell tempered refined-Mockley, or Claggett, ceramics (Custer 1984a:88-89) easily grade into earlier Mockley and late Townsend wares (Griffith 1982). However, there are other easily recognizable diagnostic artifacts from this time period such as Hell Island ceramics and Jacks Reef projectile points. Also, the reduction in numbers of sites is so dramatic that it is unlikely that it is exclusively an artifact of archaeological visibility. Therefore, there seems to be a real population reduction, or settlement disruption, in the Nanticoke drainage during terminal Woodland I times. Table 3 lists the potential site location descriptions for both riverine and interior portions of the proposed alignment alternatives.

TABLE 3

WOODLAND I STUDY UNITS AND SITE LOCATIONS

Study Units	Data Quality	Site Types	Location
Riverine Zone	fair	macro-band base camp	low terraces of major drainages at stream confluences and at saltwater/fresh water interface of the marsh
		micro-band base camp	confluences of low order streams and tidal marshes
		procurement sites	along minor and ephemeral drainages adjacent to poorly drained woodlands and on small sand ridges and knolls
Interior Zone	poor	micro-band base camp	well-drained knolls at springs and stream confluences
		procurement sites	well-drained knolls at swamps and springs

Woodland I sites are the most common sites in the proposed alignment alternatives, and for the most part the locational characteristics of these sites are not that different from those of earlier sites. There are five single component Woodland I sites, and an additional five sites with Woodland I components located in the proposed alignments, for a total of ten Woodland I sites. Five of these are located in the areas containing both alignments alternative, and there are three and two in the Southern and Northern alignments, respectively. Three of these sites (B-23, E-61, and F-27) were recorded previous to the

limited field checking conducted by UDCAR (Watson, Catts, et al. n.d); the remainder were identified during this survey.

Not all classes of Woodland I sites are eligible for the National Register. The larger base camp sites would all be considered eligible irregardless of plowing. The large size of this site type and the high potential for preserved, complicated features makes data recovery excavations at these sites an expensive proposition. These classes of sites would be primarily found within the high probability zones of the major drainages, such as the Nanticoke, Gravelly Branch, Deep Creek, and Marshyhope. Smaller Woodland I procurement sites, if unplowed, are eligible for the National Register and are also numerous in all probability zones.

Woodland II Period (A.D. 1000 - A.D. 1650). In many areas of the Middle Atlantic, the Woodland II Period is marked by the appearance of agricultural food production systems and large-scale village life (Custer 1986b). In southern Delaware, however, the change in lifeways is not as marked. There have been some finds of cultivated plants in southern Delaware (Custer 1984a:165; Doms et al. 1985), but cultivated food remains are far less common than wild, gathered plant foods (Custer and Griffith 1986:44-49). In general, the Woodland II subsistence patterns in southern Delaware are similar to those of the Woodland I Period with the likely addition of minor amounts of cultivated plant food resources.

Changes in ceramic technologies and projectile point styles can be used to recognize archaeological sites from the Woodland II Period. Triangular projectile points appeared in stone tool

kits immediately before the beginning of the Woodland II Period and by A.D. 1000, triangular projectile points are the only styles seen in prehistoric tool kits. Woodland II ceramics of southern Delaware are classified within the Townsend series (Griffith 1982) and show certain technological similarities with the preceding Woodland I ceramics. However, the appearance of more complex decorations including incised lines and cord-wrapped stick impressions distinguish the Townsend ceramic styles.

Woodland II sites of the study area and adjacent areas of southwestern Delaware are included within the Slaughter Creek Complex and the adaptations of the Slaughter Creek Complex have been subjected to intensive study (Thomas et al. 1975). Building from a careful analysis of the potential food sources found in the different environmental zones of southern Delaware, Thomas et al. (1975) developed a series of models of archaeological site distributions for the groups of people that would be exploiting these food resources. Two basic site types were noted including seasonal camps and base camps (Thomas et al. 1975:62). Base camps would correspond to macro-band base camps and seasonal camps would correspond to micro-band base camps. No projections are made concerning individual procurement sites. Five basic models of the settlement patterns were generated from the analyses of potential food sources and each model projected different combinations of micro-band base camps in different environments during different seasons (Table 4). Each settlement model assumes a different degree of residential stability ranging from groups of transient micro-band base camps to single sedentary macro-band base camps of villages.

TABLE 4

SLAUGHTER CREEK COMPLEX SETTLEMENT MODELS
(Thomas et al. 1975:60-65)

Model	Winter	Spring	Summer	Fall
1	micro-band basecamp; interior	micro-band base camp; mid-drainage	micro-band base camp; coastal	micro-band base camp; mid-drainage
2 ->	macro-band base camp; interior	micro-band base camp; mid-drainage	macro-band base camp; coastal	macro-band base camp;-> interior
3	macro-band base camp; interior	macro-band base camp; coastal	---------->	macro-band base camp; interior
4 ->	macro-band base camp; mid-drainage	---------->	micro-band base camp; coastal	macro-band base camp;-> mid-drainage
5 ->	macro-band base camp; mid-drainage	----------	----------	---------->

Because there are few excavated sites in the Nanticoke drainage, it is difficult to say which of the models noted in Table 11 is the most accurate. It can be noted that by Woodland II times (A.D. 1000 - 1600), settlement intensity and population levels returned to levels comparable to those of the Woodland I period after their reduction during Late Carey Complex times. If anything, the settlement focus on the main stem of the Nanticoke and its major tributaries was even greater during Woodland II times. Temperature and moisture perturbations noted in the paleoenvironmental record for late prehistoric times (Brush 1986; Custer and Watson 1987) may be related to the settlement focus on the higher order streams. If the Woodland II sites from the lower Marshyhope (Flegel 1975a, 1975b, 1976, 1978; Callaway, Hutchinson, and Marine 1960; Corkran and Flegel 1953; Hutchinson,

Callaway, and Bryant 1964; McNamara 1985) are considered, it can be noted that most of the sites seem to be microband base camps. Therefore, Models III and IV (see Table 4) are probably the most accurate. These models have a moderate degree of residential stability and intensification of food production, use of storage, and group size could be maintained at low levels comparable to those seen in Woodland I times. Continuity in settlement patterns from Woodland I into Woodland II times seems to be present.

Because of the continuity in settlement patterns and basic adaptations between Woodland I and Woodland II times, the study units listed for the Woodland I Period (Table 3) would also apply to the Woodland II Period.

Presently, there are three sites in the proposed alignments known to contain Woodland II components. Two of these are located in the Southern Alignment alternative, and one is located in the Northern Alignment alternative. The range of Woodland II sites eligible for listing on the National Register would be similar to those of the Woodland I Period.

Contact Period (A.D. 1650 - A.D. 1750). The Contact Period is an enigmatic portion of the archaeological record of southern Delaware which began with the arrival of the first substantial numbers of Europeans in Delaware. The period is enigmatic because only one Native American archaeological site clearly dating from this time has yet been discovered in Delaware (7NC-E-42; see Custer and Watson 1985). In southern Delaware, Contact occupations have been reported for the Townsend Site (Omwake and Stewart 1963); however, the associations of European and Native

American artifacts are problematic (Custer 1984a:177). Nevertheless, numerous Contact Period sites are evident in southeastern Pennsylvania and on the Maryland Eastern Shore (Davidson 1982; McNamara 1985; Davidson, Hughes, and McNamara 1985). It seems clear that the Native American groups of Delaware did not participate in much interaction with Europeans and were under the virtual domination of the Susquehannock Indians of southern Lancaster County, Pennsylvania, who lived during the same time period (Kent 1984). The Contact Period ended with the virtual extinction of Native American lifeways in the Middle Atlantic area except for a few remnant groups.

There are no known Contact Period sites in the proposed alignment alternatives. The settlement patterns and site distributions of Woodland II Period sites would apply during this period, but because the major effect of European contact was the reduction of native American populations, the number of sites would be expected to decrease. Data quality for all areas within the study area would be poor, and site frequencies would decrease over time. Though no Contact Period sites are known, if any were found to be present, they would clearly be eligible for listing on the National Register of Historic Places.

MANAGEMENT CONSIDERATIONS

Detailed statements of cultural resource management considerations are provided in a separate overview (Catts, Custer and Hoseth 1991), but a few comments can be made here. The listing of known sites provided in Table 2 and the other planning studies should not be viewed as a comprehensive statement of all

of the prehistoric sites in the alignment alternatives, but should instead be seen as a sample of the sites. For management purposes, it is more useful to use the projected probability zones that are marked on the enclosed maps (Attachment I). The marked probability zones are based on the initial models reported in Catts, Custer and Hoseth (1991:Attachment VI), and have been adjusted based on field testing (Watson, Catts, et al. n.d.).

AN OVERVIEW OF HISTORICAL ARCHAEOLOGICAL RESOURCES OF THE PROPOSED EAST-WEST CORRIDOR

The purpose of this overview is to briefly discuss the types of historical archaeological resources that have been identified within, and that are expected to be located within, the proposed alignments of the East-West Corridor. Expected site locations utilized for historic settlement patterns within the project corridor were developed during the initial planning study (Catts, Custer and Hoseth 1991) and from the archaeological survey of selected portions of the proposed alignments (Watson, Catts, et al. n.d.). According to Ames et al. (1987:38), Sussex County in general, and the proposed alignments in particular, offers a unique opportunity to examine cultural resources which evolved in a relatively stable demographic context. Settlement patterns within the County were reinforced instead of replaced, and newer development was integrated with the old, creating an historic landscape in which the changes over time are still evident (Ames et al. 1987:37). The integration and slow replacement of historic settlement patterns suggests that many historic sites are present within the East-West Corridor as archaeological sites, dating from all time periods across the corridor. Table 5 shows the total number of historical archaeological sites located within the project corridor, broken down by Alignment, DelDOT Design Maps and archaeological Period.

REGIONAL HISTORY AND ARCHAEOLOGICAL SITES

1630-1730

Based on the work of historical archaeologists and geographers in the Middle Atlantic region and elsewhere (Miller

TABLE 5

SUMMARY OF HISTORICAL ARCHAEOLOGICAL SITES WITHIN THE LIMITS OF THE PROPOSED EAST-WEST CORRIDOR ALIGNMENTS

Del DOT Design Map #	Both					Northern						Southern					TOTAL
	A	B	C	D	E	A	B	C	D	E	U	A	B	C	D	E	
1			1	2	1												4
2				2	2												4
3			1	1	2												4
4													1		1	1	3
5									1								1
6								1	2								4
7															4	1	5
8													1	1	1	1	4
9									1		2						3
10								1	2	1							4
11													1	2	4		7
12									2						2		2
14																	2
15															2	4	6
17														1			1
19																	0
20			1														1
24				1													1
26				1													1
29				2													2
30				3													3
31				2													2
Subtotal	0	0	3	14	5	0	0	2	6	3	2	0	3	4	14	7	
Total Alignment			22					13						28			63

KEY: A - 1630-1730+ D - 1830-1880+
B - 1730-1770± E - 1880-1940±
C - 1770-1830±

1980; Wise 1980; Custer, Jehle, Klatka, and Eveleigh 1984:102-113; Lewis 1976: 14-15; Rubertone 1986; Blouet 1972; Earle 1975), settlement patterns in the proposed alignments dating from this period were characterized by a reliance on waterways. Historically, settlement was circumscribed by the drainages within the region, such as the Mispillion, Broadkill, Indian River and Bay, Assawoman Bay, and the smaller tributary creeks, such as Cool Spring Branch, Bundick's Branch, Herring Creek, and Lewes Creek. In the western portion of the proposed alignments, the region claimed at this time by Maryland and Lord Baltimore, the Marshyhope and the Nanticoke served as the foci of settlement. Limits of historic settlement during this period will be found approximately 10 to 12 miles from the Atlantic Coast, or to the heads of the eastern-flowing drainages in the project corridor, and probably within 1/4 to 1/2 of a mile from the Nanticoke and Marshyhope drainages.

The Dutch at Lewes, and at other locations on the shores of the Delaware estuary such as Appoquinimink and New Castle, instituted a system of "long lots" which fronted on and extended inland from the waterways (Custer et al. 1984:103; Delaware Division of Historic and Cultural Affairs 1976:15; Wise 1980:7;). Based on the results of the Atlantic Coast Comprehensive Survey undertaken in the late 1970s, Wise (1980:4) has postulated that historic sites dating from this period will be located within 300 feet (100 yards) of the drainage on which they fronted.

The long-lot pattern allowed easy access to navigable water, which also served as the primary mode of transportation and communication, since overland travel was severely limited by

dense woodlands and marshes. Lots laid out using the long-lot system varied considerably in size, those in towns like Lewes being fairly small, while those established by patents from the Penn government on the south side of Indian River contained several hundred acres. In the late seventeeth-early eighteenth centuries, the Penn government also divided land up in haphazard, irregular lots, generally consisting of about 200-acre parcels (Eastburn 1891). Like the long-lot system, these irregular parcels always contained some water source, and usually had a stream serving as a property line, or running through the parcel. Within the proposed alignments, irregular lots of this pattern will be found along the Nanticoke and Marshyhope drainages, and west of the immediate vicinity of Lewes, around Cool Spring Branch and Bundick's Branch.

Regardless of the lot system used to lay out a parcel, dwellings and "plantations" were generally constructed on well-drained soils with small agricultural field(s) close-by. The low population density of Sussex during this period is reflected in the distances between plantations, which ranged from 0.25 to 1.5 miles from each other (Earle 1975; Hancock 1962). Tobacco was the major agricultural crop at this time, along with livestock raising. Land use of this type suggests that plantations of the period would exhibit an intensive use of the land in the immediate vicinity of the dwelling house and outbuildings, with a patchwork of new and old fields, but significant portions of the property would be kept in woodland or marsh for cattle forage. Structures present on agricultural complexes dating to this

period would have included small dwelling houses generally built of wood (frame or log), and only rarely of brick. Dwelling plans included a range of traditional options such as hall, hall-parlor, double-cell, cross-passage, and four-room (Herman 1987:27). House foundations were generally of earthfast or impermanent construction, a building style that characterized much of the architecture of the Eastern Seaboard during this period (Carson et al. 1981; Kelso 1984; Herman 1987:84). A variety of outbuildings such as kitchens, tobacco and grain sheds, milk houses, barns, smokehouses, and meat houses would have been present on the farmsteads (Herman 1987:61-72). Job-specific buildings, such as ship carpentry shops and blacksmith shops, were few in number, and were located primarily in the Lewes area. There are no known historical archaeological sites that date to this period in the proposed alignments. However, the potential for sites from this period to be present is moderate to high, particularly where the proposed alignments cross drainages, such as in the vicinity of Cool Spring Branch, Deep Creek, the Nanticoke, the Marshyhope, and Northwest Fork. Specifically lacking are the impermanent sites from the earliest occupation of the area, and their immediate, more durable replacements. Sites dating to this period are therefore significant cultural resources and have high potential within the corridor, and if discovered would likely be eligible for listing on the National Register.

1730-1770

During this period historic settlement extended westwards across the drainage divide and spread eastward from the Nanticoke

and Marshyhope watersheds. The boundary between Maryland and the Three Lower Counties (Delaware) was settled at the close of this period; prior to that time the Nanticoke River and it's tributaries served as the provincial line. Because of this border dispute, there were overlapping land grants issued by both governments in this portion of the East-West Corridor. The land grant patterns of the previous period continued into this one, with large, irregular parcels often bounded by a water course located in the interior of the peninsula. Water continued to function as the primary transportation and communication medium, and overland routes, though present, were poor. The few roads that did exist were primarily regional connectors, running from the Chesapeake Bay across to the Delaware Shore, and from Lewes up country to Philadelphia, or local secondary roads.

Settlement pattern during the second quarter of the eighteenth century may have shifted from a water-oriented plantation to a more inland focus (Wise 1980). A settlement shift of this nature was probably due to the change from tobacco agriculture to grain agriculture that occurred in the early eighteenth century in southern Delaware (Munroe 1978). Grain agriculture would have required more extensive land clearing and planting, thus allowing more mobility in dwelling and farmstead location. Documented population increases, caused by immigration from overseas, and overland from the Eastern Shore, would have also contributed to the change in settlement orientation.

The change in settlement pattern orientation was reflected in changes in plantation layout and architecture. Starting in

the 1740s, Georgian architectural house forms began to appear, and more permanent methods of construction and material types were utilized (Carson et al. 1981; Herman 1987:26,109-110). Livestock raising continued to be an important occupation of the area's inhabitants, and home manufactures were added by the middle of the eighteenth century to the subsistence economy of Sussex's inhabitants (Main 1973; Jordan 1914). Outbuildings reflected the changes in agriculture, with a disappearance of tobacco sheds, the presence of more durable granaries, and barns, and the addition of structures related to home manufacturing, such as weaving houses.

In the western portion of the proposed alignments, large tracts of forest land and swamp were taken up by the iron companies that were established in the second half of the eighteenth century. These iron plantations required large amounts of charcoal and wood supplies to operate, which required extensive tracts of timber. A dispersed pattern of settlement was therefore maintained in the vicinities of the forges, though the population of the forges may have been relatively high, and the furnace complexes themselves contained a variety of structures, such as grist and saw mills, blacksmith shops, dwelling houses, stables, and perhaps churches (Heite 1974; Virginia Gazette 1770; Lewes Presbytery Minutes 1758-1810).

Several small "commercial towns" (Heite and Heite 1986) were established in the project corridor by the middle of the eighteenth century. Commercial towns were those that appeared at prominent crossroads or navigation locations, and served as focal points for the local economy and society, such as Bridgebranch

(Bridgeville). These towns usually consisted of a tavern, a bridge or fording place, a grist mill or saw mill, wharves if on a navigable river, maybe a store and perhaps some domestic dwellings. The economic effect of these small towns during this period was probably negligible on the overall region, or on the economy, and Lewes remained the only major urban location in Sussex.

Three known historical archaeological sites from this period are present in the proposed alignment alternatives. One of these is the site (field-checked) of the Unity Forge at the Nanticoke River crossing of Route 404 in the Southern Alignment Alternative. The other two sites, both located by archaeological survey and both in the Southern Alignment, may be dwelling or domestic sites -- one is located a few hundred feet north of Bridgeville Branch, and the other is part of the complex of archaeological sites located to the east of Collins Pond. The other known sites that were originally identified during the reconnaissance level survey of the East-West Corridor (Catts, Custer and Hoseth 1991) are no longer included within the potential alignments. As with the previous period, archaeological sites from this period are considered to be significant and to contain high potential for listing on the National Register.

1770-1830

This period within Sussex County saw a great deal of change and development of the landscape, as new areas were brought into cultivation, new towns and market centers were founded, and the

forests were lumbered off. Subsistence agriculture (predominately corn production), forestry, and home manufactures continued to dominate the economic growth of the project corridor in this period. For the most part, dwellings were constructed of log or frame, with only a few brick houses. Farmsteads were small and averaged few buildings, typically including a house, a smokehouse, one or two corn barns, and perhaps a stable and speciality structure like a loom house or weaving shed. The occupation of the land by tenants rose during this period, and many of the farms in the proposed alignments were considered to be "out plantations", or tenant-occupied farms (Herman 1988; Garrison 1988).

The population of the county grew from about 14,000 in 1775 to over 24,000 in 1790. Though the population fluctuated throughout the remainder of the period, it generally rose, and reached over 27,000 by 1830. The early growth may be attributable to the acquisition of Maryland lands in the 1770s (the settling of the boundary issue), and the rise in population over time is indicative of the increased development of agriculture, the rise of tenancy, and home manufactures in the region (Herman and Siders 1986:79).

The founding of the "planned town" of Georgetown in the 1790s was a significant event in the history of Sussex, because it reflects the changing social and economic environment of the period. By the start of the nineteenth century, Georgetown was followed by the establishment of other centralized market place towns like Seaford, Laurel, Milton, and Millsboro, and these towns stimulated the growth of the interior portions of Sussex

County. Although not large by regional standards, these commercial towns became foci of service and merchant locations, and shops, stores, wharves, and taverns were located in them. The iron industry located in the Nanticoke watershed began to decline in economic importance during this period, and the lands sold off for farming and lumbering. Mill seats became significant locations in the project corridor during this period, and often were the center of other service-oriented structures, such as blacksmith and wheelwright shops, and taverns. Religious diversity in the County was reflected by the erection of numerous churches and chapels in interior locations throughout the project corridor, most notably Methodist and Baptist churches.

During this period the landscape of the project corridor was transformed, with more land cleared and put into agricultural production, an intensive deforestation of the interior portions of the county, and improvements in the internal transportation network (Herman and Siders 1986:80). All of these changes were reflective of larger-scale significant economic and social changes, as more land was occupied by the poorer classes of farmers and tenants.

There are at present nine known historical archaeological site located within the proposed alignments. These are evenly distributed in the Northern Alignment (3 sites), the Southern Alignment (3 sites) and the area containing both alignments (3 sites). Included in these archaeological sites are agricultural complexes, dwelling complexes, dwellings, a sawmill, Collins Forge and mill dam. There are comparatively more sites within

the proposed alignments dating from this period than from the two earlier periods, and these site's locations are well-documented. Sites from this period are considered to be significant and to have high potential. The area around Collins Pond has particularly high potential for containing significant sites that could be eligible for the National Register.

1830-1880

It is during this period that the amount of cleared land within Sussex County reached its apex, and with this clearing a rise in population and a revolution in farming. Changes in agriculture in Sussex were manifested during this period by the reclamation of waste and forest lands, and by the ditching and draining of low swamp lands. Major transportation changes, most obviously the arrival of the railroad in the County in the late 1850s, spurred the further development of the interior of Sussex, forcing the occupation, clearing and farming of previously marginal lands. Within the project corridor these lands are located at the drainage divide, south and west of Georgetown in the vicinity of Flea Hill, and east as far as Sand Hill (Bausman 1941).

During this period, the number of new roads constructed or created within the project corridor was greater than in any previous period, particularly roads that ran from interior locations to railheads and stations. Land was used for truck farming and orchard crops such as peaches and strawberries, though subsistence agriculture and corn production was still predominant as a major agricultural product of the county.

Subsistence farming continued to reinforce dispersed settlement, but the housing stock in the corridor alignments improved during this period. By 1860, earlier dwellings were being replaced and enlarged by two-story hall-parlor or center-passage single pile dwellings, with barns, corn cribs, and stables as outbuildings (Herman and Sider 1986:87).

The railroad directly created several new town locations in or near the corridor alignments, such as Greenwood and Ellendale, and at the same time allowed other cross-roads locations to decline in importance. These towns provided new foci for urban settlement, and railroad oriented services and other emerging industries were constructed at these locations. In addition, several religious "new towns", such as Rehoboth, were founded during this period. Earlier churches were also replaced or enlarged with more fashionable structures (Herman and Siders 1986:87).

All of these changes -- population increases, new transportation routes, gradual shifts in agriculture from subsistence to market gardening, land clearing and reclamation, and the establishment of new urban centers -- are suggestive of changing social, cultural and economic values within Sussex County. Though agriculture was still the predominant occupation of the people of the proposed East-West Corridor, significant urban locations contrasted with the rural nature of the region, and the rise of the tourism industry reveals changes in social perceptions of leisure time.

Settlement patterns during this period are most easily viewed by examining Beers' Atlas (1868), which is the first

detailed map of the proposed alignments. There are a total of 34 known historical archaeological sites dating from this period within the proposed alignments. Fourteen of these are located in the Southern Alignment, fourteen in the area containing both alignments, and six in the Northern Alignment. The majority of site types within the corridor dating from this period are identified as agricultural complexes, dwelling complexes, and dwellings, and there is also a grist mill, schoolhouse, and family cemetery.

Issues of historic significance and National Register potential for sites dating to this period should be addressed on a case-by-case basis, taking into consideration site type, the integrity of the archaeological remains, number of sites of this type, the presence of standing structures of the same type, associated outbuildings or architectural remains, and the like.

1880 to 1940

Herman and Siders (1986:93) have characterized the existing landscape of the region as one that is a reflection of the agricultural practices and markets that were created or practiced during the 1880 to 1940 period. The most obvious changes that can be seen today are the mechanical cultivation and irrigation of large field areas, natural forests confined to watercourses or nature preserves (such as Ellendale and Redden State Forests), and a network of roads which serve to shorten the distance between the "backcountry" and towns in the county. There has been a decline in forest area in the county, and an increase since 1940 of the number of channelized and ditched drainages.

Bausman (1941:7) identified a 25% decline in the number of farms in Sussex since 1880, attributable to the exhaustion of marginal soils for farming.

The existing housing stock within the corridor alignments dates from this period or later, including barns, corncribs, sheds, perishable-related buildings (potato houses, etc.), chicken houses, tractor sheds, and other sheds. In fact, about 77% of the housing stock in Sussex County was constructed after 1940, as either new construction or the enlarging or replacing of older buildings (Ames et al. 1987:58).

The rise in popularity of the automobile as a means of transportation has had a profound effect on the county, especially with the creation of new roads, such as Route 13 and Route 113. New roads in turn have provided new economic opportunities, particularly in the service-related industries (service stations, restaurants), which is evident by the "strip development" in sections of the proposed alignments along major regional connectors. Improved transportation also sparked the further development of market gardening and perishable crops, as well as continued growth of the tourism industry.

The development of the broiler industry that began in the 1920s has experienced a tremendous change from the previous agricultural methods followed in the area, and in land use patterns related to chicken farming. Large chicken houses are readily apparent on the landscape, and are a ubiquitous part of the agricultural growth of Sussex County.

There are fifteen known archaeological sites dating to this period in the proposed alignments. Seven of these sites are

within the Southern Alignment, three are in the Northern Alignment, and five are located in the area claimed by both alignments. Considerably more standing structures dating to the 1880-1940 +/- period are present within the project corridor and can provide more significant cultural information than archaeological sites of the same time (refer to the next section for architectural survey information). Thus archaeological sites dating to this time period are not considered to be as significant as sites from former periods, and the standing structures offer better potential for data retrieval.

MANAGEMENT CONSIDERATIONS

Detailed statements of cultural resource management considerations are provided in a separate overview (Catts, Custer and Hoseth 1991), but a few comments can be made here. The listing of known sites in the proposed alignment alternatives shown in Table 5 and provided in Appendix II and in the other planning studies is a partial statement of all of the historical archaeological sites located within the project area and should be viewed as a sample of the sites. For management purposes it is necessary to use both the projected probability zones for the earlier occupation sites and the site listings that are marked on the enclosed maps (Attachment II). The marked probability zones are based on the initial models reported by Catts, Custer and Hoseth (1991:146-149 and Attachment V), and have been refined based on the field testing and further analysis (Watson, Catts, et al. n.d.). Generally, areas noted as being high probability zones will not only have more sites, but the sites located will

be more likely to have more large sites eligible for listing on the National Register of Historic Places. Therefore, the high probability zones are the areas for significant historical archaeological cultural resources. All known historical archaeological sites located within the alignment alternatives will require at least Phase II testing to determine their eligibility for listing on the National Register, and many may also require Phase III data recovery excavations. Any investigations at historical archaeological sites located within the proposed alignment alternatives should be excavated following the research goals and guidelines established in the **Management Plan for Delaware's Historical Archaeological Resources** (De Cunzo and Catts 1991).

HISTORIC STANDING STRUCTURE CULTURAL RESOURCES IN THE PROPOSED EAST-WEST CORRIDOR ALIGNMENTS

The purpose of this overview is to briefly describe the types of historical standing structure cultural resources that have been identified within the proposed alignment alternatives of the Sussex East-West Corridor. The original reconnaissance-level survey identified 273 potential standing structure historic properties within the project corridor (Catts, Custer and Hoseth 1991), and a more detailed Location Level Architectural Survey found that of the total, 118 were eligible for listing on the National Register of Historic Places (Tabachnick and Keller 1991) (Table 6 and Appendix III). The following summary, largely excerpted from Tabachnick and Keller (1991) presents a brief history of the built environment of the alignments, using similar temporal periods utilized in the historical archaeological section of this report. Finally, standing structure management considerations will be presented.

TABLE 6

SUMMARY OF HISTORIC STANDING STRUCTURES BY TEMPORAL PERIOD LOCATED WITHIN THE PROPOSED EAST-WEST CORRIDOR ALLIGNMENT

	All Properties		Eligible Properties	
1630-1730	1	0.4%	1	0.8%
1730-1770	1	0.4%	1	0.8%
1770-1830	5	1.8%	4	3.4%
1830-1880	83	30.4%	53	44.9%
1880-1940	148	54.2%	51	43.2%
1940+	35	12.8%	8	6.8%
TOTAL	273	100%	118	100%

REGIONAL ARCHITECTURAL HISTORY AND KNOWN STANDING STRUCTURES

1630-1730: The built environment of this earliest period of Sussex County was characterized by small, impermanent, frame construction. These structures are defined as "temporary houses intended to endure from a few years to a decade or more" (Herman 1987:84). The landscape was sparsely settled, with settlement limited primarily to the Delaware coastline. The inadequacies of transportation access into the interior of the county inhibited any extensive settlement during this period. The only concentrated area was at Lewes, with forty-seven residents as of 1671. The population of Sussex county was estimated to be less than one thousand by 1700.

Within the project corridor, based upon the history and settlement patterns during this period, there would have been a wide variety of resource types comprising the built environment. Along the eastern and western project limits, there would have been a number of small grist and saw mills on the major streams. Churches were located at Cool Springs by 1728. The economy was dominated by agriculture, with farmers raising tobacco, corn, wheat, and rye. Hogs and cattle were also raised.

Domestic architecture of this period would be characterized primarily by one room plan dwellings of one or two stories (Herman 1987:15). Houses averaged sixteen to twenty feet square, and could be categorized as hall-plan dwellings. The building would have a large chimney along one gable; a boxed staircase; and a large, single room. The dwelling was likely to have been sheathed in horizontal wood siding, have timber frame construction, and a gable roof (McAlester and McAlester 1984:82).

Agricultural architecture of this period would be characterized by buildings and structures directly related to the early tobacco and grain based economy, and would have included frame tobacco sheds, small barns, and other sheds. Structures to house the hogs and cattle could also be expected to be found in the period. Commercial architecture would be characterized by small, rural stores and isolated, frame mills.

Architectural styles during this period are likely to have varied only slightly according to the location of the resource. Dutch and Swedish influences should be evident in the extreme eastern portion of the county, specifically at Lewes and along the coastline, but English influence would become the dominant factor in building and structure design. English settlers continued to press into the region, from the Chesapeake Bay on the west, and inland from the Delaware Bay on the east. Both settlement zones brought with them a strong tie to the traditional English house type: rectangular, narrow, and only a single room deep with a gable roof. This house type, defined as Chesapeake Bay Vernacular, would provide the foundation for much of the domestic architecture in Sussex County through the early twentieth century.

Survival rates for all property types from this period are extremely low. Any resource identified must be given an extremely high historic preservation priority regardless of integrity or condition. One extant historic property dating to this time period in the project region was previously recorded. This property is the Coolspring Church (S-138), constructed in

the first quarter of the eighteenth century. It is listed on the National Register of Historic Places. The present study identified one property dating to this period within the project alternatives. This dwelling (S-5080) is part of the proposed Governor Collins Historic District. No other extant buildings or structures dating from this period are presently known in the project corridor. Specifically lacking are the impermanent sites from the earliest occupation of the area, and their immediate, more durable replacements. Sites dating to this period are therefore significant cultural resources and have high potential within the corridor.

1730-1770: The built environment of this period of Sussex County was characterized by buildings larger in scale than in the previous period, but still small in size, and primarily of frame construction. More durable construction became the goal of the builders (Herman 1987:110), however, timber construction did not lend itself well to permanence. Inland settlement was spurred by timber clearing and the development of arable lands away from the coasts (Herman et al. 1989:43). Settlement had reached west of present day Georgetown, and patents were being issued throughout the corridor by both Pennsylvania and Maryland governments. The population of the county was estimated to be approaching fourteen thousand by the last quarter of the eighteenth century. Lewes continued to be the economic and social focus of the county, but small crossroads villages were appearing.

There would have been a wide variety of resource types comprising the built environment within the project corridor. Saw and grist mills would have been located on the major streams.

Churches continued to be constructed in Lewes and in the crossroads villages, with the inception of Anglicanism as the strongest religious force during this period (Herman et al. 1989:47). The economy was dominated by agriculture, with farmers shifting away from tobacco, and focusing more on the cultivation of corn and wheat. The lumber and iron industry also flourished during this period. Husbandry was primarily subsistence oriented with most households maintaining a few hogs, geese, and a cow (Herman et al. 1989:44).

The development of a more stratified society, both economically and socially, during this period, would suggest that this would be reflected in changes in the built environment. Major landholders would have the largest houses, while others lower on the economic ladder would have correspondingly smaller and poorer quality dwellings. Domestic architecture of this period would be characterized primarily by narrow, rectangular, one room plan dwellings of one or two stories (Herman 1987:15). However, some residential structures could have two, or three room plans (Herman 1987:110). Center passage houses dating to the 1740s could be expected, but more commonly are found in the 1750s and 1760s (McAlester and McAlester 1984:80). The buildings would still be dominated by one or two, large, gable end chimneys; a boxed corner staircase; and, for the most part, a large, single room that could be divided by a central staircase. It is likely that such buildings would be sheathed in horizontal wood siding, and reflect timber frame construction with a gable roof (McAlester and McAlester 1984:82).

Agricultural architecture of this period would be characterized by buildings and structures directly related to the grain based economy, and would have included frame barns, granaries and corn cribs. Structures to house the hogs and cattle could also be expected to be found in the period. Commercial architecture would be characterized by small, rural stores and isolated, frame mills. Kitchens and dwellings utilized during this period as home manufactures would also be found. As settlement increased, and additional lands were granted, the need for surveyors and other professionals also grew, thus professional offices could be found during this period, primarily in the areas of concentrated settlement. However, these types of structure would most likely have been within individual's homes, and not freestanding buildings expressly constructed for professional purposes.

Architectural styles during this period would vary only slightly according to the location of the resource. Chesapeake Bay architectural traditions are believed to have dominated the built environment within the project corridor during this period. English settlers continued to press into the region, from the Chesapeake Bay on the west, and inland from the Delaware Bay on the east. Both settlement zones brought with them strong ties to the traditional English house type; rectangular, narrow, and only a single room deep with a gable roof. This house type, defined as Chesapeake Bay Vernacular, would provide the foundation for much of the domestic architecture in Sussex County through the early twentieth century.

Survival rates for all property types from this period are low. Few dwellings survive from this period, and most have been moved from their original sites (Herman et al. 1989:43). All property types within this period remain highly significant. Catts, Custer and Hoseth (1991) recorded a total of four standing structures dating to this time period within the project region. These include the Short Farmstead (S-410), a National Register site; the Hopkins House (S-410); and the Poplar Level Farm (S-3779 and S-5144). All of these historic properties are agricultural or dwelling complexes, and date from the 1750s. One dwelling (S-827) within the project alternatives was placed on the National Register of Historic Places in 1982. The building is the Ricards House which is part of the Peach Mansion District. According to the Ricards' family history, the earliest section of the house dates to 1731 (Carter 1981). As with the previous period, historic properties from this period are considered to be significant.

1770-1830: The built environment of this period was characterized by a variety of property types scattered across the county. Building construction continued to be almost exclusively of frame following the Chesapeake Bay Vernacular pattern which, by this time, had become the traditional building form in the region. Social changes during this period may have had a substantial influence on the built environment. The number of slaves in the county was decreasing, while the percentage of free blacks within the county was rising. "In 1800 over half of the black population had been slaves; by 1830, more than 80 percent were free" (Herman et al. 1989:50).. In 1830, blacks made up

twenty-five percent of the total population of Sussex County. The decline in slave holding and the resulting growing numbers of free blacks led to the establishment of free black and tenant communities within the study region.

There would have been numerous small houses within the project corridor, primarily associated with agricultural operations. Saw mills would also have been found, with small villages developing around them. The villages would include stores, taverns, post offices, schools, and possibly, professional offices. Churches again experienced a period of growth, coinciding with the rise of Methodism. "Lay preachers and circuit riders, rural chapels and meeting houses, and annual camp meetings became common features" (Herman et al. 1989:52). Religious structures associated with this dominant theme were extant throughout the corridor.

Domestic architecture of this period would be characterized primarily by narrow, rectangular dwellings of one or two stories, and one to three room plans (Herman 1987:15, 110). Many would have a central staircase dividing a large, open room; however, some could have a tripartite plan, with a central hall dividing the house (McAlester and McAlester 1984:80). In contrast to houses from the earlier periods, residences during this period tended to incorporate a number of domestic functions that previously had occupied separate structures. Instead of a separate office, summer kitchen, and servant residences, these functions were added to the house, usually as part of a rear wing (Herman 1987:148). Early dwelling began to be expanded and

adapted to changing needs. Farmsteads typically were composed of a house; a service structure such as a smokehouse; and one or two, small farm buildings such as a cornhouse, barn, or stable. It is likely that such buildings were sheathed in horizontal wood siding, and reflected timber frame construction with a gable roof (McAlester and McAlester 1984:82).

Agricultural architecture of this period would be characterized by buildings and structures directly related to the grain based economy. "As land was more intensively tilled, a new generation of farm buildings was erected" (Herman et al. 1989:51). These structures included small hay and feed barns, cornhouses of log and frame, tenant housing, stables, granaries, and others. Structures related to growing husbandry would be evident. These buildings were associated with hogs, cows, sheep, oxen, and horses (Catts, Custer and Hoseth 1991:37).

Commercial architecture would be characterized by small, rural stores and isolated, frame mills. Kitchens and dwellings utilized during this period as home manufactures would also be found. Home manufacturing dominated the economy of Sussex County during this period, with over seventy-five percent of the wool produced in Delaware coming from Sussex County homes (Catts, Custer and Hoseth 1991:38). Examples of architecture relating to the manufacturing context of the period would include the iron forges within the corridor, including foundries at Collins Mill Pond and Unity Forge near Bridgeville.

Architectural styles during this period would be dominated by the Chesapeake Bay architectural traditions. This tidewater pattern evolved from a simple, one room, narrow, rectangular plan

structure to what is currently characterized as an I-house (McAlester and McAlester 1984:80, Glassie 1968:64; Kniffen 1986:7; Noble 1984:48). Although variations in plan have occurred, the I-house basically consists of a two story hall and parlor dwelling. Thus continuity remains from the earliest temporary, frame dwellings erected by the first settlers in the seventeenth century through the nineteenth century. The pattern would most likely apply to all levels of housing, from the wealthy landowners down to the tenant worker's dwellings. Slave dwellings were extant during this period, but their design and appearance have not been documented for this study. It is suggested, however, that the architecture of these simple shelters would vary with the origins of the builder: i.e., if the slave houses were constructed by the master, they would be influenced by his cultural background. If the slave houses were built by the slaves themselves, it is unclear what architectural traditions they may have followed.

Survival rates for all property types from this period are much higher than those of earlier periods. Most of the remaining structures within the project corridor would be rural in location, except for those related to town growth found within Bridgeville and Georgetown (Herman et al. 1989:48). Developmental pressures are increasing in the area due primarily to modern highway construction along Routes 404/9/18, Route 113, and Route 13, along with pressures associated with the steady expansion of the beach resorts. Property types within this period require a more critical assessment of material integrity,

physical condition, rarity, and significance. During the course of Location Level Historic Resources Survey, only five properties were identified that may date to this period within or adjacent to the project corridor alternatives.

1830–1880: The built environment of this period of Sussex County was characterized by a wide variety of property types scattered across the county. Concentrated development persevered at the "urban" sites of Georgetown, Bridgeville, Lewes, and Rehoboth. Building construction continued to be almost exclusively of frame following the Chesapeake Bay Vernacular pattern.

Social changes during this period persisted to have an influence on the built environment. The black population remained generally constant overall, but the slave population decreased slightly. However, at the outbreak of the civil War, Sussex County was the largest slave holding area in the state. Generally, the slaves were the property of small farmers, while the free blacks worked as laborers. Housing for these groups would be commonly found across the project corridor, with scattered slave houses standing in association with farming operations, as well as free black tenant housing that would be located in association with farming operations (McDaniel 1982). Free black communities, including Belltown and Jimtown, developed after the Civil War. The built environment as it reflects these cultural trends and changes is unclear at this time, and deserves additional study.

There would have been numerous small houses within the project corridor, primarily associated with agricultural

operations. Saw mills would also have been found, with small villages developing around them. The villages would include stores, taverns, post offices, schools, and possibly, professional offices. Churches again experienced a period of growth coinciding with the rise of Methodism. "Lay preachers and circuit riders, rural chapels and meeting houses, and annual camp meetings became common features" (Herman et al. 1989:52). Religious structures associated with this dominant theme were extant throughout the corridor.

Domestic architecture of this period would be characterized primarily by narrow, rectangular dwellings of one or two stories, and one to three room plans (Herman 1987:15, 110). A number would have the central staircase dividing a large, open room as seen in earlier periods, but the majority would have a tripartite plan, with a central hall dividing the house (McAlester and McAlester 1984:80). In contrast to houses from the earlier periods, residences during this period tended to incorporate a number of domestic functions previously occupying separate structures. Instead of a separate office, summer kitchen, and servant residences, these functions were added to the house, usually as part of a rear wing (Herman 1987:148). Early dwellings were expanded and adapted to changing needs. Farmsteads typically were composed of a house; a service structure such as a smokehouse; and one or two, small farm buildings such as a cornhouse, barn, or stable. It is likely that such structures were sheathed in horizontal wood siding, and reflected timber frame construction with a gable roof (McAlester and McAlester 1984:82).

Agricultural architecture of this period would be characterized by a wide variety of buildings and structures relating to the cultivation of corn, fruits, and vegetables. "Cash crops, like peaches and strawberries, required significant capital outlay to get underway, and the availability of sizable short-term labor force for harvest, processing, and packing" (Herman et al. 1989:54). This would suggest that housing would be necessary for this seasonal temporary work force. Examples of this housing could include small, tenant houses and migrant labor camps that would be found throughout the corridor. Structures related to the agricultural theme during this period would include cornhouses, orchards, and grading sheds. Other building types associated with agricultural reform and architectural renewal [which took place to a limited extent in Sussex County during this period], and would have been evident on the landscape, were granaries or crib barns, livestock barns or stables, carriage houses, and cart sheds (Herman 1987:199).

Commercial architecture would be characterized by small, rural stores; frame, saw mills; blacksmith shops, etc. Kitchens and dwellings utilized during this period as home manufactures would also be found: pursuits included shell button making and weaving (Herman et al. 1989:55). Examples of architecture relating to the manufacturing context of the period would include small factories producing baskets, leather works, furniture, and wagons. Although few in number, buildings related to professional services within the corridor would also be found, including the offices of attorneys.

Transportation architecture during this period would be dominated by the arrival of the railroads in the 1850s. Property types that would have dotted the landscape include bridges, railroad tracks and stations. Other buildings and structures that would be found throughout the corridor in this period include schools and post offices.

Architectural styles during this period would be dominated by the Chesapeake Bay architectural traditions. This tidewater pattern evolved from a simple, one room, narrow, rectangular plan structure to what is currently characterized as an I-house (McAlester and McAlester 1984:80, Glassie 1968:64; Kniffen 1986:7; Noble 1984:48). Although variations in plan have occurred, the I-house basically consists of a two story hall and parlor or center passage, single pile dwelling. The average size of a typical I-house was sixteen to twenty-four feet deep by twenty-eight to forty-eight feet wide by twenty to twenty-four feet tall (Noble 1984:52). After the Civil War, "service functions that were formerly housed in various outbuildings were connected to the house" (Herman et al. 1989:57) in the form of service wings. During this period, various architectural detailing would have been used to decorate the exteriors of these I-houses, but little changes were made to the form itself. Greek Revival, Italianate, and Gothic Revival elements would be found on many of the more substantial dwellings, those owned by major landholders or farm supervisors. It would not be expected that the lower classes of buildings, tenant houses, for example, would have had a substantial amount of embellishments on the exterior of the structures.

Survival rates for all property types from this period are much higher than those of earlier periods. Most of the remaining structures within the project corridor would be rural in location, except for those related to town growth found on the outskirts of Bridgeville and Georgetown (Herman et al. 1989:48). Developmental pressures are increasing in the area due primarily to modern highway construction along Routes 404/9/18, Route 113, and Route 13, and pressures associated with the steady expansion of the beach resorts. Property types within this period require a more critical assessment of material integrity, physical condition, rarity, and significance. During the course of the Location Level Historic Resources Survey, eighty-three properties were identified that may date to this period within or adjacent to the project alternatives.

1880-1940: The built environment of this period was characterized by a wide variety of property types scattered across rural areas. Development continued at the "urban" sites of Georgetown, Bridgeville, Lewes, and Rehoboth. Suburban development occurred during this period, with properties constructed spreading outside of the early town limits. Building construction continued to be almost exclusively of frame following the I-house pattern, but new suburban architectural styles also came into use.

There would have been numerous, small houses within the project corridor, primarily associated with agricultural operations. Saw mills would also have been found, with small villages clustered around them. The villages would include

stores, taverns, post offices, schools, and possibly, professional offices. Churches continued to experience a period of growth, coinciding with the rise of Methodism. "Lay preachers and circuit riders, rural chapels and meeting houses, and annual camp meetings became common features" (Herman et al. 1989:52). Religious structures associated with this dominant theme were extant throughout the corridor.

Domestic architecture of this period would be characterized primarily by narrow, rectangular dwellings of one or two stories, and one to three room plans (Herman 1987:15, 110). A number would have the central staircase dividing a large, open room as seen in earlier periods, but the majority would have a tripartite plan, with a central hall dividing the house (McAlester and McAlester 1984:80). In contrast to houses from the earlier periods, residences during this period tended to incorporate a number of domestic functions that had previously occupied separate structures. Instead of a separate office, summer kitchen, and servant residences, these functions were added to the house, usually as part of a rear wing (Herman 1987:148). Early dwellings were expanded and adapted to changing needs. Farmsteads typically were composed of a house; a service structure such as a smokehouse; and one or two, small farm buildings such as a cornhouse, barn, or stable. It is likely that such buildings were sheathed in horizontal wood siding, and reflected timber frame construction with a gable roof (McAlester and McAlester 1984:82).

Agricultural architecture of this period would be characterized by a wide variety of buildings and structures

relating to the cultivation of perishable seasonal crops, corn, and the broiler industry. Crops such as peppers, melons, tomatoes, peaches, strawberries, and other fruits and vegetables were raised, processed, canned and exported. Buildings relating to this process are found throughout the corridor during his period. These structures included canneries, packing, and sorting structures. Corn was a dominant cash crop during the early years of this period. Later, corn was utilized for chicken feed for the broiler industry. Corncribs, silos, and dryers relating to the cultivation of corn would have been evident. The broiler industry also developed during this period and grew to dominate the economy. Buildings related to the broiler industry include chicken houses.

Commercial architecture would be characterized by small, rural stores at the crossroads; frame, saw mills and lumberyards; and also roadside establishments along the improved routes. New transportation related developments included service stations, roadside restaurants, stores and shops. Examples of architecture relating to the manufacturing context of the period would consist of small factories on the outskirts of the towns, producing baskets and buttons. Home manufactures continued, with the production of holly wreaths and boxwood Christmas ornaments during this period. It is unknown how this practice was reflected in the built environment. Buildings related to professional services within the corridor would also be found, especially in the larger towns,but also could be evident in the smaller crossroads villages. Property types would include doctor's offices, lawyers offices, and others.

Transportation architecture during this period would be dominated by the changes brought on by the development of the automobile. Highway construction and improvements through the corridor included Routes 113 and 13. Property types that would have dotted the landscape during this period include new roads, bridges, railroad tracks and stations, freight depots, and airports.

Other buildings and structures that would be found throughout the corridor in this period from a variety of contexts, include schools, post offices, and churches. From the Depression period, public works such as new ditches, CCC camps, public service buildings, and World War I and II related buildings and structures would be found.

Architectural styles during this period would still be dominated by the frame I-house tradition, based in the historic architectural tradition of the Tidewater South (McAlester and McAlester 1984:80). Although variations in plan have occurred, the I-house basically consists of a two story, hall and parlor or center passage, single pile dwelling. The average size of a typical I-house was sixteen to twenty-four feet deep by twenty-eight to forty-eight feet wide by twenty to twenty-four feet tall (Noble 1984:52). The buildings would have rear wings housing kitchens. During this period, various architectural detailing would have been used to decorate the exteriors of these I-houses, but little changes were made to the form itself. Many dwellings would have had cross-gables added to provide drama to the house's facade. Machine cut moldings and detailing to porches and eaves would also have been added.

Other housing forms coterminus with the suburbanization theme of the period included Queen Anne, Bungalow, Foursquare, and late Victorian Eclecticism (Herman et al. 1989:63). These suburban designs were primarily mass-producible and were taken from popular catalogues that also became accessible during this period (Gowans 1987). The distribution of these catalogues, (Sears, Aladdin, and others) brought new styles into the region, including Cottages, Bungalows, Foursquares, and Colonial Revivals. These building styles were quickly utilized by local residents, and can frequently be found on suburban streets encircling Bridgeville and Georgetown, as well as on newly laid out arteries like Routes 113 and 13. Many of the historic properties between Georgetown and Bridgeville, currently lining Route 404, were constructed during this period, probably soon after the construction of that section of the road, prior to 1934.

Survival rates for all property types from this period are the greatest of all the periods. Developmental pressures are increasing in the area due primarily to modern highway construction along Routes 404/9/18, Route 113, and Route 13, and pressures associated with the steady expansion of the beach resorts. Modern housing construction is occurring around Georgetown, Bridgeville, and along both sides of Route 404 at the eastern end of the corridor. Often this modern development is occurring on former farmsteads, with concurrent destruction of the agricultural character of the site and the removal of the original historic farmhouses and support buildings. Architectural integrity should be consistently high measure of significance for

property types within this period (Herman et al. 1989:59). During the course of the Location Level Historic Resources Study, 148 properties were identified that may date to this period within or adjacent to the project alternatives.

MANAGEMENT CONSIDERATIONS

The architectural survey conducted by Tabachnick and Keller (1991) studied a total of 273 historic properties within the originally proposed four study corridors. One hundred and eighteen (118) of the properties appear to be eligible for the National Register of Historic Places, based upon either Criterion C:architecture, or Criterion A:association with a significant historic pattern (Table 6 and Appendix III). All of the resources were evaluated according to the preservation priorities and within the historic contexts developed in the State Plan (Herman et al. 1989; Ames et al. 1989). One hundred and fifty-five (155) historic properties were determined not to be eligible for the National Register. The primary factors in determining historic properties as not eligible were the lack of integrity and/or the lack of architectural significance. Twenty-five (25) historic properties were determined to need more work in order to assess their significance.

It should be noted that due to the limitations inherent in the scope of a Location Level Architectural Survey (Tabachnick and Keller 1991), historic properties were evaluated primarily on the external architectural appearance of the resource. Additional areas of significance may be revealed through an Evaluation Level Survey, where substantial amounts of background

research are required to assess eligibility based upon all National Register Criteria. In addition, no boundaries were suggested for the eligible properties detailed in the study. Additional research would be necessary to provide this data.

The breakdown of the eligible historic properties can be seen in Appendix III-B. This Appendix shows the individually eligible properties, multiple property submissions, and historic districts. Thirty-five properties were proposed to be individually eligible for the National Register. A variety of multiple property submissions were utilized to group significant historic properties according to a number of themes. Twenty-two properties were included in the Three Bay, I-House, Multiple Property Submission. Two properties were contained in the Four Bay, I-House, Multiple Property Submission. Nine properties were included in the Five Bay, I-House, Multiple Property Submission. The Classical Box Multiple Property Submission consists of five properties. Seven properties were included in the Commercial Roadside Multiple Property Submission.

A variety of historic districts were developed in order to group significant properties that were geographically linked. The Governor Collins Historic District includes five properties. The H.N. Pepper Historic District contains three properties. The Peach Mansion Historic District consists of four properties. The H.E. Williams Historic District includes three properties. The Harbeson Historic District is made up of nine properties. The Mill Worker Housing consists of five properties. And the Twentieth Century Tenant historic district includes six properties.

Appenidix III-A provides a breakdown of historic properties by study corridor. There is considerable overlap in the alignment of each of the corridors (see Historic Property Location map in Appendix A). The Route 404 alignment corridor contains the second highest number of historic properties. One Hundred and eighty-one (181) properties are located in or adjacent to this proposed alignment, eighty-three (83) of which appear to meet the criteria of eligibility for listing on the National Register. The alignment that seems to have the fewest historic properties is Road 527. Sixty-two (62) eligible properties are located in or adjacent to the Road 527 alignment corridor.

CULTURAL RESOURCE MANAGEMENT OVERVIEW OF THE PROPOSED EAST-WEST CORRIDOR ALIGNMENT ALTERNATIVES

The purpose of this overview is to provide a summary of the cultural resource management data for the proposed East-West Corridor alignment alternatives. The previous sections of this report have already dealt with the three main classes of cultural resources (prehistoric archaeological sites, historical archaeological sites and historic standing structures), this overview will solely consider the types of resources (and their potential significance) that are present or expected to be present within the proposed alignment alternatives.

Table 7 provides a summary listing of all of the known sites and structures currently located within the proposed alignments (see Attachment III, the DelDOT design maps, for the locations of these sites). Sites that are presently located beyond the limits of the 300' corridor are not included within these counts; if the proposed alignments are shifted in the future, other known sites may be impacted.

Within the Northern Alignment alternative there are a total of five prehistoric sites, thirteen historical archaeological sites, and four historic standing structures and/or districts that will be directly impacted by the proposed corridor. In the Southern Alignment alternative there are three prehistoric sites, twenty-eight historical archaeological sites and two historic standing structures and/or districts that will be impacted by the proposed alignment. As presently proposed, the area shared by both alignments, located to the west of Bridgeville and to the east of Georgetown, will impact seven prehistoric sites, twenty-

TABLE 7

SUMMARY OF ALL KNOWN CULTURAL RESOURCES LOCATED WITHIN THE PROPOSED EAST-WEST CORRIDOR ALIGNMENT ALTERNATIVES

Northern Alignment				Southern Alignment				Both			
PA	HA	DH	SH	PA	HA	DH	SH	PA	HA	DH	SH
5	13	4	9	3	28	2	19	7	22	2	26

KEY: PA = Prehistoric Archaeological Sites

HA = Historic Archaeological Sites

DH = Directly effected (within the 300' Corridor) Historic Standing Structures and/or Districts

SH = Secondarily effected (beyond the 300' Corridor, but subject to visual or noise effects) Historic Standing Structures and/or Districts

two historical archaeological sites, and four historic standing structures and/or districts.

For both prehistoric and historical archaeological resources, any sites that are found to be eligible for listing on the National Register of Historic Places would require Phase III data recovery excavations if avoidance or preservation-in-place were not feasible mitigation alternatives. The high probability zones (see Attachments I and II) would also require the greatest number of Phase II determination-of-eligibility testing projects. Directly effected standing structures and/or districts will require detailed architectural recordation and survey for properties that are eligible for listing on the National Register.

As presently proposed much of the built environment within the corridor will not directly effect by the alignment alternatives, but there will be other, secondary effects (ie., visual, noise) on additional standing structures and districts that will have to be considered. These are included in Table --. In the Northern Alignment alternative, an additional nine historic standing structures may be subjected to secondary (ie., visual or noise) effects that will have to be mitigated. In the Southern Alignment alternative, an additional nineteen standing structures and/or districts may be subjected to secondary effects that will have to be mitigated. Finally, in the area shared by both alignments, a further twenty-six standing structures and/or districts may be subjected to secondary effects of the proposed project that will have to be mitigated.

REFERENCES CITED

Ames, David L., Bernard L. Herman, and Rebecca J. Siders
1987 **The Delaware Statewide Comprehensive Historic Preservation Plan.** Center for Historic Architecture and Engineering, College of Urban Affairs and Public Policy, University of Delaware, Newark.

Belknap, D. F., and J. C. Kraft
1977 Holocene Relative Sea-Level Changes and Coastal Stratigraphic Units on the Northwest Flank of the Baltimore Canyon Geosyncline. **Journal of Sedimentary Petrology** 47(2):610-629.

Blouet, Brian W.
1972 Factors Influencing the Evolution of Settlement Patterns, in **Man, Settlement, and Urbanism**, edited by Peter J. Ucko, Ruth Tringham, and G.W. Dimbleby, pp. 3-15, Gerald Duckworth and Co., Herfordshire, England.

Braun, E. L.
1967 **Deciduous Forests of Eastern North America.** Hafner, New York.

Brush, G.
1986 Geology and Paleoecology of Chesapeake Estuaries. **Journal of the Washington Academy of Sciences** 76(3):146-160.

Callaway, W., H. Hutchinson, and D. Marine
1960 The Moore Site. **Archaeolog** 12(1):1-8.

Carter, Richard B
1981 **National Register of Historic Places Inventory-Nomination Form for Ricards House-Linden Hall.** On file at the Bureau of Archaeology and Historic Preservation in Dover, DE.

Catts, Wade P., Jay F. Custer and Angela Hoseth
1991 **A Cultural Resources Reconnaissance Planning Study of the Proposed Sussex East-West Corridor, Delaware Routes 404/18 and 9, Sussex County, Delaware.** Delaware Department of Transportation Archaeology Series No. 86. Dover.

Corkran, D. E., and P. S. Flegel
1953 Notes on Marshyhope Creek Sites (Maryland). **Archaeolog** 5(1):46.

Custer, Jay F.
1982 A Reconsideration of the Middle Woodland Cultures of the Upper Delmarva Peninsula. In **Practicing Environmental Archaeology: Methods and Interpretations**, edited by R. Moeller, pp. 29-38. Occasional Papers of the American Indian Archaeological Institute No. 3. Washington, CT.

1983a **Delaware Prehistoric Archaeology: An Ecological Approach.** University of Delaware Press, Newark.

1983b **A Management Plan for Delaware's Prehistoric Archaeological Resources.** Delaware Division of Historical and Cultural Affairs, Dover.

1984a **Delaware Prehistoric Archaeology: An Ecological Approach.** University of Delaware Press, Newark, De.

1984b Paleoecology of the Late Archaic: Exchange and Adaptation. **Pennsylvania Archaeologist** 54:32-47.

1984c An Analysis of Fluted Points and Paleo-Indian Site Locations from the Delmarva Peninsula. **Bulletin of the Archaeological Society of Delaware** 16:1-28.

1986a Analysis of Early Holocene Projectile Points and Site Locations on the Delmarva Peninsula. **Archaeology of Eastern North America** 14:45-64.

1987 A Management Plan for the Prehistoric Archaeological Resources of Delaware's Atlantic Coastal Region. **University of Delaware Center for Archaeological Research Monograph No. 4**, Newark.

1988 **Prehistoric Cultures of the Delmarva Peninsula: An Archaeological Study.** University of Delaware Press, Newark.

Custer, J. F., and D. C. Bachman
1986a **An Archaeological Planning Survey of Selected Portions of the Proposed Route 13 Corridor, New Castle County, Delaware.** Delaware Department of Transportation Archaeology Series No. 44. Dover, DE.

1986b Prehistoric Use of Bay/Basin Features of the Delmarva Peninsula. **Southeastern Archaeology** 5(1):1-10.

Custer, J. F., D. C. Bachman, and D. Grettler
1986 **An Archaeological Planning Study of Selected Portions of the Proposed Route 13 Corridor, Kent County, Delaware.** Delaware Department of Transportation Archaeology Series 45. Dover, DE.

Custer, J. F., and D. R. Griffith
1984 **Analysis of Palynological and Sedimentary Data from the Mitchell Farm Site (7NC-A-2), New Castle County, Delaware, and the Dill Farm Site (7K-E-12), Kent County, Delaware.** University of Delaware Center for Archaeological Research Report 4. Newark, DE.

1986 Late Woodland Cultures of the Southern Delmarva Peninsula in **Late Woodland Cultures of the Middle Atlantic Region,** edited by Jay F. Custer, pp. 29-57. University of Delaware Press, Newark, DE.

Custer, Jay F., Patricia Jehle, Thomas Klatka, and Timothy Eveleigh
1984 **A Cultural Resources Reconnaissance Planning Study of the Proposed Rt. 13 Relief Corridor, New Castle and Kent Counties, Delaware.** DelDot Archaeology Series No. 30, Delaware Department of Transportation. Dover, DE

Custer, J. F., and S. C. Watson
1985 Archaeological Investigations at 7NC-E-42, a Contact-Period Site in New Castle County, Delaware. **Journal of Middle Atlantic Archaeology** 1:97-116.

1987 Making Cultural Paleoecology Work: An Example from Northern Delaware. **Journal of Middle Atlantic Archaeology** 3:81-94.

Daiber, F. C., O. W. Crichton, L. L. Thornton, G. L. Esposito, K. A. Bolster, D. R. Jones, T. G. Campbell, and J. M. Tyrawski
1976 An **Atlas of Delaware's Wetlands and Estuarine Resources.** Delaware Coastal Management Program, Technical Report No. 2. Newark, DE.

De Cunzo, Lu Ann and Wade P. Catts
1991 Management Plan for Delaware's Historical Archaeological Resources. University of Delaware Center for Archaeological Research, Newark.

Delaware Division of Historical and Cultural Affairs
1976 **A Topical History of Delaware.** State of Delaware, Department of State, Dover, DE.

Delaware Geological Survey
1976 **Geologic Map of Delaware.** Newark: Delaware Geological Survey.

Doms, K., J. F. Custer, G. Davis, and C. Trivelli
1985 Archaeological Investigations at the Bay Vista Site (7S-G-26) and the Cole Site (7S-G-79). **Bulletin of the Archaeological Society of Delaware** 19.

Earle, C. V.
1975 The Evolution of a Tidewater Settlement System: All Hallows Parish, Maryland, 1650-1783. **University of Chicago, Department of Geography, Research Paper** No. 170. Chicago.

Eastburn, Benjamin
1891 Warrants for Sussex County, 1735. **Pennsylvania Archives** 2(7):201-203.

Flegel, P. S.
1975a Final Report, Lankford Site (18DO43) Pit 2BF1. Manuscript on file, Maryland Geological Survey, Division of Archaeology, Baltimore, MD.

1975b The Lankford Site, Report on Pit No. 3 Excavation. Manuscript on file, Maryland Geological Survey, Division of Archaeology, Baltimore, MD.

1976 The Lankford Site, Report on Pit 1 Excavations. Manuscript on file, Maryland Geological Survey, Division of Archaeology, Baltimore, MD.

1978 The Marshyhope Creek: Its Indian Places, Pottery, Points, and Pipes. **Archaeolog** 30(1):13-59.

Garrison, J. Ritchie
1988 Tenancy and Farming, in **After Ratification: Material Life in Delaware, 1789-1820**, edited by J. Ritchie Garrison, Bernard L. Herman, and Barbara McLean Ward, pp. 21-38. Museum Studies Program, The University of Delaware, Newark.

Glassie, Henry
1968 **Pattern in the Material Folk Cultural of the Eastern United States.** University of Pennsylvania Press, Philadelphia, PA.

Gowans, Alan
1987 **The Comfortable House: North American Suburban Architecture 1890-1930.** The MIT Press, Cambridge, MA.

Griffith, Daniel R.
1982 Prehistoric Ceramics in Delaware: An Overview. **Archaeology of Eastern North America** 10:46-68.

Hancock, Harold B.
1962 Descriptions and Travel Accounts of Delaware, 1700-1740, **Delaware History** 10(2):115-151.

Heite, Edward F.
1974 The Delmarva Bog Iron Industry, **Northeast Historical Archaeology** 3(2):18-34.

Heite, E. F., and L. B. Heite
1986 Town Plans as Artifacts: The Mid-Atlantic Experience. **Quarterly Bulletin of the Archaeological Society of Virginia** 41(3):142-159.

Herman, Bernard L.
1987 **Architecture and Rural Life in Central Delaware, 1700-1900**, The University of Tennessee Press, Knoxville.

1988 Fences, in **After Ratification: Material Life in Delaware, 1789-1820**, edited by J. Ritchie Garrison, Bernard L. Herman, and Barbara McLean Ward, pp. 7 - 20. Museum Studies Program, The University of Delaware, Newark.

Herman, Bernard L., and Rebecca J. Siders
1986 **Delaware Comprehensive Historic Preservation Plan: Historic Contexts**, Center for Historic Architecture and Engineering, College of Urban Affairs and Public Policy, The University of Delaware, Newark.

Herman, Bernard L. and Rebecca J. siders with David L. Ames and Mary Helen Callahan
1989 **Historic Context Master reference and Summary.** June. Center for Historic Architecture and Engineering, college of Urban affairs and Public Policy, University of Delaware.

Hutchinson, H., W. H. Callaway, and C. Bryant
1964 Report on the Chicone Site #1 (18-Do-11) and Chicone Site #2 (18-DO-10). **Archaeolog** 16(1):14-18.

Ireland, William Jr., and Earle D. Mathews
1974 **Soil Survey of Sussex County, Delaware.** U.S. Department of Agriculture, Washington, D.C.

Jordan, John W.
1914 Penn vs. Baltimore: Journal of John Watson, Assistant Engineer to the Commissioners of the Province of Pennsylvania, 1750. **Pennsylvania Magazine of History and Biography** 38:385-406.

Jordan, R. R.
1964 **Columbia sediments of Delaware.** Delaware Geological Survey Bulletin no. 12. Newark: Delaware Geological Society.

Kniffen, Fred B.
1986 "Fold Housing: Key to Diffusion." In **Common Places: Readings in American Vernacular Architecture.** Dell Upton and John Michael Vlach, eds. University of Georgia Press, Athens, GA.

Lewes Presbytery Minutes,
1758-1810 Microfilm 1269, Morris Library, University of Delaware, Newark.

Lewis, Kenneth E.
1976 **Camden: A Frontier Town.** Occasional Paper of the Institute of Archaeology and Anthropology, Anthropological Studies 2, University of South Carolina, Columbia.

Main, Jackson Turner
1973 **The Social Structure of Revolutionary America.** Princeton University Press, Princeton.

McAlester, Virginia and Lee McAlester
1984 **A Field Guide to American Houses.** Alfred A. Knopf, New York.

McDaniel, George W.
1982 "Voices From the Past: Black Builders and Their Buildings." In **Three Centuries of Maryland Architecture.** Maryland Historical Trust, Annapolis, MD.

McNamara, J. M.
1985 Excavations on Locust Neck: The search for the historic Indian settlement in the Choptank Indian Reservation. **Journal of Middle Atlantic Archaeology** 1:87-96.

Miller, Henry M.
1980 Research Designs in Historical Archaeology, paper presented at the 10th annual Middle Atlantic Archaeological Conference, Dover, Delaware.

Munroe, John A.
1978 **Colonial Delaware.** KTO Press, Millwood, New York.

Noble, Allen G.
1984 **Wood, Brick, and Stone: The North American Settlement Landscape Volume 1: Houses.** The University of Massachusetts Press, Amherst, MA.

Orth, Rodgers, Thompson and Associates, Inc.
1987 **Sussex 2005: A Program for the Future.** Delaware Department of Transportation, Dover.

Rubertone, Patricia E.
1986 Historical Landscapes: Archaeology of Place and Space. **Man in the Northeast** 31:123-138.

Tabachnick, Allan D. and Amy B. Keller
1991 **Location Level Historic Resources Survey: Sussex East-West Corridor Study, Sussex County, Delaware.** Delaware Department of Transportation Archaeological and Historical Series No. --. Dover, Delaware.

Thomas, R. A., D. R. Griffith, C. L. Wise, and R. E. Artusy
1975 Environmental Adaptation on Delaware's Coastal Plain. **Archaeology of Eastern North America** 3:35-90.

Virginia Gazette (Purdie and Dixon)(Williamsburg)
1770

Watson, Scott C., Wade P. Catts, Dawn Chesaek, Daniel Bailey, and Jay F. Custer
n.d. **An Archaeological Planning Survey of Selected Portions of the Proposed East-West Corridor, Sussex County, Delaware.** Delaware Department of Transportation Archaeology Series No. (in press). Dover.

Webb, R., P. Newby, and T. Webb
1988 Palynology and Paleohydrology of Kent County, Delaware: Preliminary Report. Manuscript on file, University of Delaware Center for Archaeological Research, Newark.

Wise, Cara
1980 Changing Colonial Settlement Patterns in Delaware's Coastal Plain, Ms on file, University of Delaware Center for Archaeological Research.

MAPS SOURCES CONSULTED

Atlas of the State of Delaware. Pomeroy and Beers, Philadelphia, 1868.

PERSONNEL

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APPENDIX I

PREHISTORIC SITES
LOCATED WITHIN THE EAST-WEST CORRIDOR ALIGNMENTS

Site No.	DelDOT Design Map No.	Alignment	Date Range	Function
14.1d	1	Shared	Unknown	Unknown
14.3a	1	Shared	Unknown	Unknown
7S-B-23	1	Shared	WI	Unknown
14.1f	1	Shared	Archaic	Unknown
13.5a	2	Shared	WI	Unknown
13.7c	2	Shared	WI	P/P
12.1a	4	Southern	WI,WII	Microband
11.7a (S-254)	9	Northern	WI,WII	Microband
7S-E-61	11	Southern	WI,WII	P/P
7S-F-27	12	Southern	WI	Microband
6.2b	14	Northern	Archaic,WI	Unknown
7S-F-16	15	Northern	Unknown	P/P
4.24a	19	Northern	Unknown	Unknown
4.3b	19	Northern	Unknown	Unknown
4.34a	20	Shared	Archaic,WI	Microband

KEY:

WI = Woodland I
WII = Woodland II
P/P = Procurement/Processing
Microband = Microband Base Camp

NOTE: Site numbers used in this table are keyed to CRS numbers from BAHP (ex. S-5062), or to the selected portions of the archaeological field survey conducted by UDCAR in the winter of 1990/91 (ex. 13.1a). These latter sites will be assigned sites numbers and CRS numbers as soon as possible by the BAHP.

APPENDIX II

HISTORICAL ARCHAEOLOGICAL SITES LOCATED WITHIN THE EAST-WEST CORRIDOR ALIGNEMENTS

Site No.	DelDOT Design Map No.	Alignment	Date Range	Function	Potential	Significance
14.1b	1	Shared	1830-1880	Dwelling	Yes	Medium
14.1c	1	Shared	1830-1880	Dwelling	Yes	Medium
S-1797	1	Shared	1913-Present	Dwelling Complex	Yes	Low
14.1e (S-357)	1	Shared	1770-1830	Dwelling	Yes	High
13.5a	2	Shared	1830-1880	Dwelling	Yes	Medium
13.7f	2	Shared	1830-1880	Dwelling	Yes	Medium
13.7d	2	Shared	1880-1940	Dwelling	Yes	Low
S-346	2	Shared	1880-1940	Ag. Complex	Yes	Low
S-1733	3	Shared	1880-1940	Dwelling Complex	Yes	Low
S-1732	3	Shared	1880-1940	Dwelling Complex	Yes	Low
13.10b	3	Shared	1770-1830	Dwelling Complex	Yes	High
13.10a (S-1734)	3	Shared	1830-1880	Ag. Complex	Yes	Low
164	3	Shared	1830-1880	Ag. Complex	Yes	High
13.15a	4	Southern	1730-1770	Dwelling	Yes	High

Site No.	DelDOT Design Map No.	Alignment	Date Range	Function	Potential	Significance
13.15b	4	Southern	1830-1880	Dwelling	Yes	Medium
12.1a	4	Southern	1880-1940	Dwelling	Yes	Low
330	5	Northern	1830-1880	School	Yes	Low
166	6	Northern	1830-1880	Ag. Complex	Yes	Medium
172	6	Northern	1830-1880	Ag. Complex	Yes	Medium
173	6	Northern	1770-1830	Saw Milll	Yes	High
11.1a	7	Southern	1830-1880	Dwelling	Yes	Medium
11.1c	7	Southern	1830-1880	Dwelling	Yes	Medium
11.3b	7	Southern	1830-1880	Dwelling	Yes	Medium
11.4a (S-5148)	7	Southern	1830-1880	Dwelling Complex	Yes	Low
11.3a (S-5147)	7	Southern	1915-Present	Ag. Complex	Yes	Low
10.5a	8	Southern	1830-1880	Dwelling	Yes	Medium
10.7a	8	Southern	1880-1940	Dwelling	Yes	Low
340	8	Southern	1770-1830	Dwelling	Yes	High
10.3a (S-432)	8	Southern	1730-1770	Forge	Yes	High
10.3b	8	Southern	1830-1880	Dwelling	Yes	Medium

Site No.	DelDOT Design Map No.	Alignment	Date Range	Function	Potential	Significance
S-5140	9	Northern	Unknown	Unknown	Unknown	Unknown
11.8a	9	Northern	Unknown	Unknown	Yes	Unknown
11.7a (S-254)	9	Northern	1830-1880	Dwelling Complex	Yes	Medium
350	10	Northern	1830-1880	Ag. Complex	Yes	Medium
6.2a	10	Northern	1830-1880	Dwelling	Yes	Medium
6.2d	10	Northern	1770-1830	Ag. Complex	Yes	High
S-5139	10	Northern	c1900-Present	Ag. Complex	Yes	Low
9.1a	11	Southern	1830-1880	Ag. Complex	Yes	High
364	11	Southern	1770-1830	Mill Dam	Yes	Low
S-433	11	Southern	1770-1830	Forge	Yes	High
366	11	Southern	1830-1880	Grist Mill	Yes	High
9.2a	11	Southern	1730-1770	Dwelling Complex	Yes	High
9.2b	11	Southern	1830-1880	Dwelling Complex	Yes	High
9.2c	11	Southern	1830-1880	Dwelling Complex	Yes	High

Site No.	DelDOT Design Map No.	Alignment	Date Range	Function	Potential	Significance
64	12	Southern	1830-1880	Ag. Complex	Yes	Medium
5.6a	12	Southern	1830-1880	Dwelling Complex	Yes	Medium
6.2c	14	Northern	1880-1940	Dwelling	Yes	Low
6.8a (S-5122)	14	Northern	1880-Present	Ag. Complex	Yes	Low
5.8a (S-5070)	17	Southern	1915-Present	Dwelling Complex	Yes	Low
S-5062	17	Southern	1880-1940	Dwelling	Yes	Low
5.3b	17	Southern	1880-1940	Dwelling	Yes	Low
5.3a (S-5064)	17	Southern	1830-1880	Ag. Complex	Yew	Medium
5.11a	17	Southern	1830-1880	Dwelling	Yes	Medium
5.9b	17	Southern	1880-1940	Dwelling	Yes	Low
4.3a	19	Northern	1770-1830	Dwelling	Yes	High
4.34b	20	Shared	1770-1830	Dwelling	Yes	High
4.6a	24	Shared	1830-1880	Dwelling	Yes	Medium
3.7a	26	Shared	1830-1880	Family Cemetery	Yes	High
203	29	Shared	1830-1880	Ag. Complex	Yes	Medium

Site No.	DelDOT Design Map No.	Alignment	Date Range	Function	Potential	Significance
202	29	Shared	1830-1880	Ag. Complex	Yes	Medium
6	30	Shared	1830-1880	Ag. Complex	Yes	Medium
13	30	Shared	1830-1880	Ag. Complex	Yes	Medium
20 (S-866)	30	Shared	1830-1880	Ag. Complex	Yes	Medium
1.3a	34	Shared	1830-1880	Ag. Complex	Yes	Medium
1.2a	34	Shared	1830-1880	Dwelling	Yes	Medium

KEY: Ag. = Agricultural
No. = Number

NOTE: Site numbers used in this table are keyed to CRS numbers from BAHP (ex. S-5062), or to the potential historical archaeological sites identified in Catts, Custer and Hoseth (1991), Appendix III, (ex. 366) or to the selected portions of the archaeological field survey conducted by UDCAR in the winter of 1990/91 (ex. 13.1a). These latter sites will be assigned sites numbers and CRS numbers as soon as possible by the BAHP.

APPENDIX III-A

HISTORIC STANDING STRUCTURES BY STUDY CORRIDOR LOCATED IN THE PROPOSED ALIGNMENTS

(from Tabachnick and Keller 1991:360)

Road 40
CRS Nos.

346 3235 8406 8481
739 3236 8407 8482
823 3553 8408 8483
827 3566 8409 8484
855 3567 8410 8485
856 3568 8411 8486
858 3569 8412 8487
859 3571 8413 8488
860 3573 8414 8489
863 3574 8415 8490
864 3617 8416 8491
865 3618 8417 8492
866 3619 8418 8493
867 3644 8419 8494
899 3645 8420 8495
900 3992 8421 8496
956 4022 8422 8497
957 5143 8424 8498
1042 5146 8430 8499
1703 5147 8431 8500
1707 5148 8432 8501
1725 5149 8433 8502
1728 5151 8435 8503
1729 5152 8436 8504
1730 5153 8441 8505
1731 5154 8442 8506
1733 5156 8443 8507
1734 5213 8444 8508
1755 5214 8445 8509
1757 5215 8446 8510
1758 5216 8447 8511
1759 5217 8448 8512
1779 5218 8449 8513
1788 5220 8450 8514
1795 7958 8451 8515
1797 8059 8452
2912 8344 8453
3022 8397 8454
3024 8398 8473
3025 8399 8474
3158 8400 8475
3159 8401 8476
3160 8402 8477
3163 8403 8478
3189 8404 8479
3233 8405 8480

Route 404
CRS Nos.

346 3024 5089 8474
409 3025 5090 8475
739 3158 5091 8476
823 3159 6052 8477
855 3160 6053 8478
856 3163 6054 8479
857 3193 6066 8480
858 3194 8059 8481
859 3553 8348 8482
860 3566 8397 8483
863 3567 8398 8484
864 3568 8399 8485
865 3569 8400 8486
866 3571 8401 8487
867 3573 8402 8488
899 3574 8403 8489
900 3617 8404 8490
956 3618 8405 8491
957 3619 8406 8492
1042 3644 8407 8493
1664 3645 8408 8494
1668 5058 8409 8495
1669 5061 8410 8496
1687 5062 8411 8497
1688 5063 8412 8498
1708 5064 8413 8499
1710 5066 8414 8500
1711 5067 8455 8501
1712 5068 8456 8502
1713 5070 8457 8503
1714 5071 8458 8504
1715 5072 8459 8505
1733 5073 8460 8506
1734 5075 8461 8507
1755 5077 8462 8508
1757 5078 8463 8509
1758 5079 8464 8510
1759 5080 8465 8511
1779 5081 8466 8512
1788 5082 8467 8513
1795 5083 8468 8514
1797 5084 8469 8516
1890 5085 8470 8517
1992 5086 8471
2912 5087 8472
3022 5088 8473

Road 527
CRS Nos.

346 3192 8414 8503
739 3553 8415 8504
823 3566 8416 8505
827 3567 8417 8506
855 3568 8418 8507
856 3569 8419 8508
857 3571 8420 8509
858 3573 8421 8510
859 3574 8422 8511
860 3617 8423 8512
863 3618 8424 8513
864 3619 8425 8514
865 3644 8426
866 3645 8427
867 3992 8428
899 5109 8429
900 5127 8473
956 5128 8474
957 5131 8475
1042 5139 8476
1703 5140 8477
1707 5141 8478
1725 5143 8479
1728 5146 8480
1729 5147 8481
1730 5148 8482
1731 5149 8483
1733 5151 8484
1734 8059 8485
1755 8397 8486
1757 8398 8487
1758 8399 8488
1759 8400 8489
1779 8401 8490
1788 8402 8491
1795 8403 8492
1797 8404 8493
2912 8405 8494
3022 8406 8495
3024 8407 8496
3025 8408 8497
3158 8409 8498
3159 8410 8499
3160 8411 8500
3163 8412 8501
3191 8413 8502

Wishbone
CRS Nos.

346 1779 5073 8402 8459 8505
409 1788 5075 8403 8460 8506
739 1795 5077 8404 8461 8507
823 1797 5078 8405 8462 8508
827 1890 5079 8406 8463 8509
855 1992 5080 8407 8464 8510
856 2912 5081 8408 8465 8511
857 3022 5082 8409 8466 8512
858 3024 5083 8410 8467 8513
859 3025 5084 8411 8468 8514
860 3158 5085 8412 8469 8515
863 3159 5086 8413 8470 8516
864 3160 5087 8414 8471 8517
865 3163 5088 8415 8472
866 3189 5089 8416 8473
867 3193 5090 8417 8474
899 3194 5091 8414 8475
900 3233 5143 8419 8476
956 3235 5146 8420 8477
957 3236 5147 8421 8478
1042 3553 5148 8422 8479
1664 3566 5149 8424 8480
1668 3567 5152 8430 8481
1669 3568 5153 8431 8482
1687 3569 5154 8432 8483
1688 3571 5156 8433 8484
1703 3573 5213 8435 8485
1707 3574 5214 8436 8486
1708 3617 5215 8411 8487
1710 3618 5216 8442 8488
1711 3619 5217 8443 8489
1712 3644 5218 8444 8490
1713 3645 5220 8445 8491
1714 3992 6052 8446 8492
1715 4022 6053 8447 8493
1725 5058 6054 8448 8494
1728 5061 6066 8449 8495
1729 5062 7958 8450 8496
1730 5063 8059 8451 8497
1731 5064 8344 8452 8498
1733 5066 8348 8453 8499
1734 5067 8397 8454 8500
1755 5068 8398 8455 8501
1757 5070 8399 8456 8502
1758 5071 8400 8457 8503
1759 5072 8401 8458 8504

APPENDIX III-B

ELIGIBLE HISTORIC PROPERTIES

LOCATED WITHIN THE PROPOSED EAST-WEST CORRIDOR ALIGNMENTS

Individually Eligible Properties (including NR listed)	35
Three Bay I-House Multiple Property Submission Properties	22
Four Bay I-House Multiple Property Submission Properties	2
Five Bay I-House Multiple Property Submission Properties	9
Classical Box Multiple Property Submission Properties	5
Commercial/Roadside Multiple Property Submission	7
Governor Collins Historic District Properties	5
H.N. Pepper Historic District Properties	3
Peach Mansion Historic District Properties (including 1 NR listed)	4
H.E. Williams Historic District Properties	3
Harbeson Historic District Properties	9
Mill Worker Housing Historic District Properties	3
Nineteenth Century Tenant Historic District Properties	5
Twentieth Century Tenant Historic District Properties	6
TOTAL Eligible or Listed Historic Properties	118

APPENDIX III-C

ARCHITECTURAL STYLES

PRESENT WITHIN THE PROPOSED EAST-WEST CORRIDOR ALIGNMENTS

Style	All Properties		Eligible Properties	
Unadorned Vernacular	58	20.8%	18	14.6%
Chesapeake Bay Vernacular	11	4.0%	8	6.5%
Federal	2	0.7%	1	0.8%
Vernacular w/ Federal	2	0.7%	1	0.8%
Vernacular w/ Gothic Revival	1	0.4%	1	0.8%
Peach Mansion Vernacular	1	0.4%	1	0.8%
Vernacular w/ Italianate	3	1.1%	3	2.4%
Vernacular Eclectic	1	0.4%	0	0.0%
Vernacular w/ Victorian Gothic	2	0.7%	2	1.6%
Colonial Revival, 19th	8	2.9%	2	1.6%
Arts & Crafts	1	0.4%	0	0.0%
Commercial	16	5.8%	10	8.1%
Bungalow	2	0.7%	1	0.8%
Classical Box	12	4.3%	7	5.7%
Colonial Revival 20	12	4.3%	4	3.3%
Unique	2	0.7%	2	1.6%
30s Picturesque	4	1.4%	1	0.8%
Art Deco	1	0.4%	1	0.8%
Post 1945	24	8.6%	1	0.8%
I-House	141	41.0%	58	47.2%
Shotgun	1	0.4%	1	0.8%

* Many properties reflect more than one style.
Table reflects number of styles present not properties.

ATTACHMENT I

PREHISTORIC PROBABILITY ZONES

For maps with prehistoric probability zone information please contact:

Delaware Department of Transportation
Division of Highways
Location and Environmental Studies
P.O. Box 78
Dover, DE 19903

(302) 739-3826

ATTACHMENT II

HISTORIC PROBABILITY ZONES

For maps with historic probability zone information please contact:

Delaware Department of Transportation
Division of Highways
Location and Environmental Studies
P.O. Box 78
Dover, DE 19903

(302) 739-3826

ATTACHMENT III

DELDOT DESIGN MAPS OF PROPOSED EAST-WEST CORRIDOR ALIGNMENT ALTERNATIVES

For DelDOT deisgn maps of the proposed East-West Corridor Alignment alternatives information please contact:

Delaware Department of Transportation
Division of Highways
Location and Environmental Studies
P.O. Box 78
Dover, DE 19903

(302) 739-3826

DRAFT

MEMORANDUM OF AGREEMENT

FOR THE PROPOSED SUSSEX EAST WEST CORRIDOR

SUSSEX COUNTY, DELAWARE

88-112-01

OCTOBER, 1991

DRAFT

MEMORANDUM OF AGREEMENT

FOR THE PROPOSED SUSSEX EAST WEST CORRIDOR

SUSSEX COUNTY, DELAWARE

WHEREAS, the Federal Highway Administration, U.S. Department of Transportation (FHWA), in consultation with the Delaware State Historic Preservation Officer (SHPO), has determined that the construction of the proposed Sussex East West Corridor may have an adverse effect upon properties, structures and historic and prehistoric archaeological sites included in or eligible for inclusion in the National Register of Historic Places and will continue to request the comments of the Advisory Council on Historic Preservation (ACHP) pursuant to Section 106 (and Section 110f) of the National Historic Preservation Act (16 U.S.C. 470) and its implementing regulations, "Protection of Historic and Cultural Properties (36 CFR Part 800)"

WHEREAS, pursuant to the procedures of the ACHP (36 CFR Part 800), representatives of the Delaware Department of Transportation (DelDOT), an invited participant in the consultation process, the FHWA and the DelSHPO will consult and review the undertaking to consider prudent and feasible alternatives to avoid or satisfactorily mitigate the adverse effect; and,

WHEREAS, pursuant to the procedures of the ACHP (36 CFR Part 800), representatives of the FHWA, the DelDOT, and the DelSHPO have and will continue to consult;

NOW THEREFORE, the FHWA, DelDOT, DelSHPO and ACHP agree that the planning for all cultural resources within the proposed Sussex East West corridor and all related construction activities, i.e., borrow pits, wetland replacement sites, construction roads, staging and storage areas, etc., will be accomplished in accordance with the following procedures in order to take into account the effect of the proposed project on cultural resources.

1.0 Identification of Resources

DelDOT, in consultation with the DelSHPO is undertaking and will complete a Phase I and II archaeological, historical and architectural survey of the proposed Sussex East West corridor and all related construction activities, i.e., borrow pits, wetland replacement sites, construction roads, staging and storage areas. This survey has and will continue to be performed in accordance with Appendix B of 36 CFR Part 66 ("Guidelines for the Location and Identification of Historic Properties Containing Scientific, Prehistoric, Historical, or Archaeological Data") and has and will continue to result in the location and identification of all properties within the proposed Sussex East West corridor which are or appear to be eligible for listing in the National Register of Historic Places under Criteria A, B, C, and/or D.

2.0 Evaluation of Significance

DelDOT, in consultation with the DelSHPO and FHWA, will apply the National Register Criteria (36 CFR 60.6) to all sites and properties which have been and will be identified in the final Sussex East West corridor and all related construction activities, i.e., borrow pits, wetland replacement sites, construction roads, staging and storage areas. The FHWA will submit the results of these consultations to the Keeper of the National Register in the form of Determinations of Eligibility pursuant to 36 CFR 63.3 for those properties that will be affected by the proposed project.

3.0 Determination of Effect

DelDOT will, in consultation with the FHWA and DelSHPO, determine the effect of the proposed undertaking for each National Register listed or eligible property or site identified in Section 2.0 above in accordance with ACHP procedures (36 CFR 800.3).

4.0 Mitigation Measures

Cultural properties, sites and structures, that are determined eligible under Section 2.0 above and which may be adversely affected by the proposed project as identified in Section 3.0 above will be treated in accordance with the following stipulations in order to minimize any identified adverse effect.

4.1 General Measures

During the development of all stages of route selection and design, a reasonable effort will be made to locate the proposed new

alignment and structures away from affected sites, structures and properties so as to avoid adverse effects. Agreement on final alignment selection will be subject to DelSHPO and ACHP review and comments.

4.2 Archaeological Resources

If efforts to avoid significant archaeological sites or properties during the final planning and design of the proposed project are not prudent or feasible, preservation in place is not feasible, and the effect on these resources remains adverse, DelDOT will develop, in consultation with the DelSHPO and FHWA, data recovery plans for each site or class of sites so affected. All data recovery plans will include research design, budgets and schedules for completion prior to construction and will be otherwise in conformance with the ACHP "HANDBOOK" and subject to FHWA approval and ACHP and DelSHPO review and comment.

4.3 Historical/Architectural Resources

If efforts to avoid direct or indirect adverse effects on significant historical/architectural structures or properties during the final planning and design of the proposed project are not prudent or feasible, DelDOT and FHWA shall develop mitigation plans for each district, site or property so affected. These plans will be subject to DelSHPO and ACHP review and comment. These plans may include, but not be limited to any combination of the following measures as appropriate:

4.3.1 Moving the structure(s) and marketing for resale.

4.3.2 Recordation of the structure(s) in accordance with the standards of the Historic American Building Survey or the Historic American Engineering Record.

4.3.3 Landscaping to provide visual screens and/or noise barriers.

4.4 Completion of Mitigation

DelDOT and FHWA will ensure that all mitigation measures are completed and reports or other documentation agreed to by DelSHPO and ACHP prior to the demolition, alteration, substantial deterioration and/or transfer of the affected site or property.

5.0 Reporting Standards

Draft and Final Survey reports and reports or other documentation that may result from any projects to mitigate adverse effects of the proposed undertaking will be prepared in accordance with the professional standards outlined in the ACHP "Guidelines for the Preparation and Evaluation of Archaeological Reports" and the DelSHPO's "Guidelines for Cultural Resource Reports Submitted to the Bureau of Archaeology and Historic Preservation." Any recordation of buildings or structures will be accomplished in conformance with HABS and HAER standards. These reports and documents will be subject to the review and approval of the DelSHPO and will be submitted as final prior to the completion of construction. Copies of the final reports will be distributed to all MOA signatories and all other interested parties to be determined by DelDOT, FHWA, and DelSHPO. A Public Summary Report

detailing the prehistory, history and architectural resources of the Sussex East West corridor will be prepared and made available for general distribution prior to the completion of construction.

6.0 Professional Qualifications

DelDOT and FHWA shall ensure that all historic architectural, and archaeological work pursuant to this Memorandum of Agreement is carried out by or under the direct supervision of a person or persons meeting at a minimum, the appropriate qualifications set forth in the Department of the Interiors "Professional Qualifications."

7.0 Public Participation

As it can be accomplished, every effort will be made to provide for public participation in the cultural resource survey's and data recovery projects, if any, during the planning and construction phases of the Sussex East West project.

8.0 Dispute Resolution

If at any time during the execution of the terms of this Memorandum of Agreement, a conflict or objection arises that cannot be resolved by the FHWA, DelDOT and DelSHPO, the conflict or objection may be brought to the ACHP for review and comment. FHWA

will take into account the comments of ACHP in reaching a final decision.

FHWA, Delaware Division Administrator Date

DelDOT, Chief Engineer/Director Date

DelSHPO, State Historic Preservation Officer Date

ACHP, Executive Director Date

ACHP, Chairman Date